MDB INSIGHT

City of Hamilton
FIRE Sector Feasibility Study

Final Report

December 2018

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1. Introduction

The Finance, Insurance and Real Estate (FIRE) Sector is a prominent part of the service economy and has grown in importance on a global scale, particularly considering shifts in manufacturing and the industrialized economy. The sector which includes banks, credit union, insurance firms and the real estate industries influence almost all other industries as it plays a key role in business growth, credits, asset acquisition, location and debt deflation. The sector is highly dependent on asset prices and interest on debt and is therefore vulnerable to industrial shocks and policy changes. Nevertheless, the FIRE sector has been historically strong since the financial crisis of the late 2000s and guarantees continued growth into the future. The sector's profitability is closely tied to interest rates, household and business credit use, returns on investments and overall economic stability.[1]

This Finance, Insurance and Real Estate Sector Feasibility Study was completed to clearly and accurately describe the current state of the FIRE sector in the City of Hamilton and build knowledge and expertise to assist local FIRE companies, investment opportunities, and determine Hamilton's value proposition for this sector. The study is intended as a profile of the sector in Hamilton including identifying strengths, opportunities, gaps and hindrances to growth. As the City of Hamilton begins to profile this sector, this report establishes the foundation for in-depth research and provides the city with an appreciation for the impact of the sector to inform decisions moving forward.

1.1 Study Methodology

The analysis and recommendations of this report were based on both primary and secondary research and consist of the following sections:

- **Industry Baseline** - this includes examining sector jobs, employment growth, and business composition and worker trends. The educational profile is examined to determine the skill level of the workforce in Hamilton.
- **SWOT Assessment** - the performance of the sector in Hamilton is assessed to accurately establish the areas of strengths, weakness, opportunities and threats in the sector.
- **Key Trends** – this includes examining key trends impacting the future growth of the FIRE sector.
- **Hamilton's Value Proposition** – to specifically position the FIRE sector to a foreign audience
- **Recommendations** – strategic directions on how Hamilton can strengthen its FIRE Sector

Informing these sections was the completion of primary research that included consultations with local stakeholders including business representatives in the finance, insurance and real estate sector and local educational institutions. A workshop was also conducted as part of the Blocktech Connect 2018 Conference. Secondary research included an overview of the sector and was completed based on data available through Statistics Canada and OMAFRA's EMSI Analyst Tool. Data sources included 2016 Statistics Canada National Census, Canadian Business Counts and EMSI Analyst.

[1] Finance, Insurance, Real Estate, Rental and Leasing: Ontario 2016-2018 Report, Government of Canada. Accessed Online October 2018, www.jobbank.gc.ca/content_pieces-eng.do?cid=12306

1.2 Defining the FIRE Sector

The FIRE sector was defined using the North American Industry Classification System (NAICS) codes. Six sub-sectors were identified as central to the sector. These include:

- Banks
- Insurance
- Investment
- Fintech/Blockchain Potential
- Real Estate and rental and leasing
- Support Industries to the FIRE Sector

Detailed definitions of each sub-sector are provided below.

- **Banks** – Defined using NAICS 522. This subsector comprises establishments primarily engaged in lending funds raised from depositors or by issuing debt securities and establishments that facilitate the lending of funds or issuance of credit and cheque-cashing services. Examples include chartered banks, trust companies and deposit-accepting mortgage companies
- **Insurance** – Defined using NAICS 524. This subsector comprises establishments primarily engaged in underwriting annuities, insurance policies and reinsurance, and the retailing of insurance and the provision of related services to policyholders.
- **Investment** – Defined using NAICS 523. This subsector comprises establishments primarily engaged in putting capital at risk in the process of underwriting securities issues or in making markets for securities and commodities; acting as intermediaries between buyers and sellers of securities; providing securities and commodity exchange services, facilitating the marketing of financial contracts; asset management, and providing investment advice, trust, fiduciary, custody and other investment services.
- **Fintech/Blockchain Potential** – Defined using NAICS 5112 and NAICS 5415. These industry groups comprise establishments primarily engaged in publishing computer software and those providing expertise in the field of information technologies.
- **Real Estate and Rental and Leasing** – Defined using NAICS 53. This sector comprises establishments primarily engaged in renting, leasing or otherwise allowing the use of tangible or intangible assets. Establishments primarily engaged in managing real estate for others; selling, renting and/or buying of real estate for others; and appraising real estate, are also included.
- **Support Industries to the FIRE Sector** – Defined using NAICS 5411, NAICS 5412, NACIS 5614 and NAICS 6114. Examples include legal services, accounting, tax preparation, bookkeeping and payroll services, business support services, such as preparing documents, collecting unpaid claims, and providing credit information and business schools and computer and management training

The industry NAICS relative to each sector is provided in Appendix I.

2. Industry Baseline

This section of the report provides an overview of the FIRE sector with emphasis on the sector's performance in Hamilton. This includes examining current trends in the FIRE sector on a global, national and local level. The performance of the FIRE sector is examined to provide the context for examining the sector's province in Hamilton.

FIRE sector jobs, employment growth and business composition and worker trends including income are studied to understand the current state of the sector. The educational profile is also examined to determine the skill level of the workforce in Hamilton. The report also studies the supply chain of the sector and future growth projections including future staffing patterns. The performance of the sector in Hamilton is also compared to national and regional trends to accurately establish the areas of strengths, opportunities and gaps in the sector.

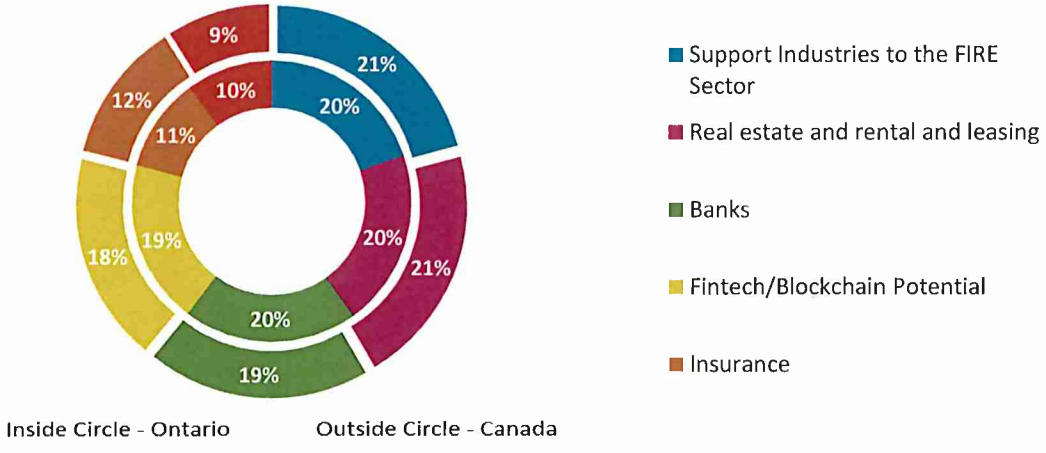
Key findings are presented below. A full sector profile is provided in Appendix II.

2.1 National and Provincial Economic Performance

The Canadian FIRE sector has grown in strength as contributions to total industry GDP increased from $352.46 billion in 2010 to $436.74 billion in 2017. The sector is a key contributor to the nation's economic performance as it accounted for 23% of total industry GDP and accounted for 17% ($137 billion) of Foreign Direct Investment (FDI) in Canada in 2017.

In 2017, the Canadian FIRE sector accounted for 2,001,918 jobs (10% of total employment) in Canada. Approximately 45% of these jobs were in the province of Ontario. The real estate and rental and leasing and banking sub-sectors were the major contributor of FIRE sector jobs in Ontario and Canada. Industries within Fintech/Blockchain Potential are also seen to be a major contributor to jobs, accounting for 19% of all FIRE sector jobs in Ontario.

Figure 1: Percentage of Jobs in the FIRE Sector in Canada & Ontario, 2017



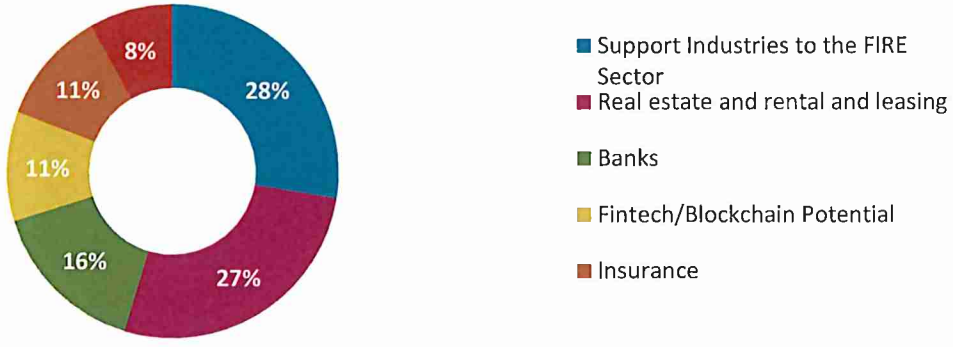
Source: EMSI Analyst, 2018. Real estate and rental and leasing data are for 2016.

2.2 City of Hamilton Economic Performance

2.2.1 Employment in the FIRE Sector

In 2017, the FIRE sector in Hamilton accounted for 21,441 jobs, representing 8% of the city's total employment. Of the 21,441 jobs in the FIRE sector, the majority can be attributed to real estate and rental and leasing and support industries to the sector (Figure 2). The support industries include legal services, accounting, tax preparation, bookkeeping and payroll services, business support services and business schools and computer and management training.

Figure 2: Percentage of Jobs in the FIRE Sector, 2017



Source: EMSI Analyst, 2018. Real estate and rental and leasing data are for 2016.

Table 1 shows that jobs in the FIRE sector grew by 18% (3,206 jobs) from 2007 to 2017. Although the Fintech/Blockchain Potential has a comparatively lower proportion of jobs, this industry subsect is seen to be one of the fastest growing, adding approximately 926 jobs since 2007.

Table 1 also shows the location quotient (LQ) for Hamilton in 2017. LQ's helps to identify the concentration of FIRE sector jobs in the city relative to Ontario. The real estate and rental and leasing sector and support industries are seen to be the only sectors with a high concentration of jobs compared to Ontario while the Insurance sector shows job concentration on par with the province.

Table 1: Job Growth in the FIRE Sector, 2007-2017 and 2017 Location Quotients for Industry Sector

industry Sectors (NAICS)	Jobs by Year		2007-2017 Job Change		LQ 2017	
	2007	2017	Absolute Change	% Change	LQ	Concentration
Banks	2,849	3,330	481	17%	0.77	Average
Insurance	2,094	2,370	276	13%	1.02	Average
Investment	1,039	1,733	694	67%	0.81	Average
Fintech/Blockchain Potential	1,362	2,288	926	68%	0.56	Low
Real estate and rental and leasing	5,181	5,803	622	12%	1.33	High
Support industries to the FIRE Sector	5,710	5,917	207	4%	1.40	High
Total FIRE Sector Jobs	**18,235**	**21,441**	**3,206**	**18%**	**0.70**	**Average**

Source: EMSI Analyst, 2018. Real estate and rental and leasing data are for 2016.

Comparing Hamilton's FIRE sector jobs to other GTAH communities, namely, Toronto, Mississauga, Oakville and Burlington, it was determined that the proportion of FIRE sector jobs in Hamilton at 8% is lower than the proportion of FIRE sector jobs in Toronto (19%), Mississauga (13%), Oakville (13%) and Burlington (12%).

2.2.2 Commuting Patterns in the FIRE Sector

Data Limitations Note: Due to data suppression by Statistics Canada, commuting patterns data can only be accessed at 3 digit level and not a detailed 4 digit level that underpins the data above and data following this section. As such the key takeaway from section 2.2.2. is that the majority of FIRE sector jobs in Hamilton are held by Hamilton residents and that there is a net export Hamilton based FIRE sector employees that commute from Hamilton to work elsewhere when compared to the number of commuters who come into Hamilton to work in Hamilton's FIRE sector.

The labour flow of the workforce provides a representation of the movement of labour in and out of a community. It compares the number of jobs held by residents of a community to the number of jobs held by people working in the community. The residents of the community may work in the same community or travel outside the community to work. Similarly, the people working in the community may be its residents or people living outside the community but still commute to work in the community. **Error! Reference source not found.**Table 2 shows the data for the residents of Hamilton and those employed in Hamilton in the FIRE sector.

- **Residents of Hamilton -** Approximately 51,205 residents of Hamilton may be employed in the FIRE sector. These include residents who work in Hamilton's FIRE sector (32,850), and residents who travel outside Hamilton to work in the FIRE sector of other municipalities (18,355).
- **Employed in Hamilton -** Approximately 43,490 people are employed in Hamilton's FIRE sector. These include Hamilton residents who work in Hamilton's FIRE sector (32,850) and residents from other municipalities commuting to work in Hamilton's FIRE sector (10,640).

Table 2 showcases that Hamilton is a net exporter of FIRE sector workers. Net export indicates that a community does not have enough jobs for its residents and thus they need to travel outside the community to work.

Table 2: Labour Flow by Industry, 2016

FIRE Sub-sectors	Resident of Hamilton	Employed in Hamilton	Net Import (+)/Net Export (-)
Banks	4,235	3,130	-1,105
Insurance	3,625	2,495	-1,130
Investment	1,305	810	-495
Fintech/Blockchain Potential	11,235	8,125	-3,110
Real estate and rental and leasing	3,160	2,885	-275
Support Industries to the FIRE Sectors	27,645	26,045	-1,600
Total FIRE Sector Jobs	**51,205**	**43,490**	**-7,715**

Source: Statistics Canada, 2016 Census of Population

As mentioned earlier, although Hamilton attracts 10,640 people from outside the community to work in its FIRE sector, it still is losing 18,355 of its residents to other communities. Hamilton sees a net export of

labour to comparator communities such as Burlington, Toronto, Mississauga and Oakville while attracting residents of Grimsby, Haldimand County Brantford and West Lincoln to work in Hamilton's FIRE sector.

2.2.3 Supply Chain Analysis

The supply chain analysis (expanded in Appendix II) examines leakages in the economy, or where money is leaving the city that might otherwise be captured. It can also be used as an exploratory tool for deciding what businesses might be a good fit for the City.

The industry supply chain for Hamilton's FIRE sector in Q3 2018 shows that $401.59 million was made in purchases in the FIRE sector alone.[2] Of these, approximately $303.06 million (75%) were in-community purchases, meaning that the money was spent within the community while the remaining $98.54 million (25%) were imported purchases, indicating money leaking out of the area.

2.2.4 Business Count Assessment

The business counts data identified 42,338 business establishments in Hamilton in 2017. Of these 12,366 businesses (29%) were businesses related to the FIRE sector. FIRE sector businesses in Hamilton increased from 10,328 counts in 2014 to 12,366 counts in 2017.

As shown in Figure 3, real estate and rental and leasing businesses accounted for approximately 65% of Hamilton FIRE sector businesses. Investment businesses and businesses that support the FIRE sector accounted for 14% and 8% of all FIRE sector businesses.

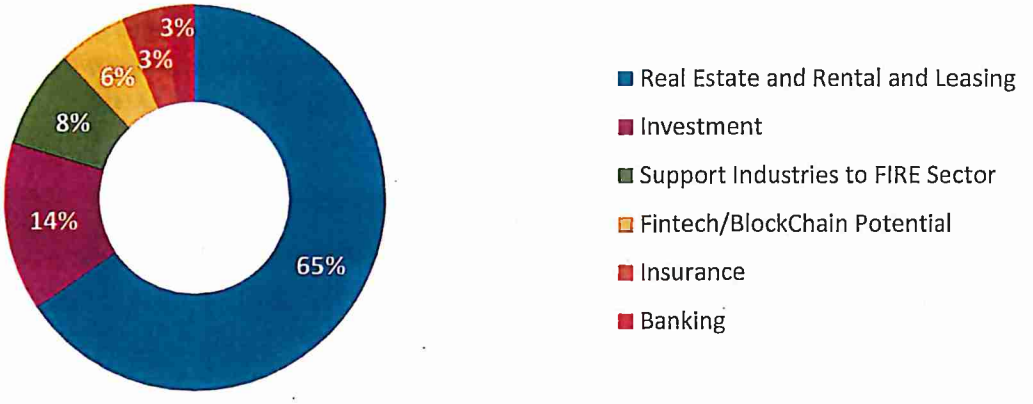
The majority of businesses in investment were miscellaneous intermediation establishments primarily engaged in acting as principals in the buying and selling of financial contracts, other than securities or commodity contracts, generally on a spread basis. Support businesses included offices of lawyers and accountants, bookkeeping, payroll and tax preparation services.

Approximately 6% of businesses have Fintech/Blockchain Potential and include computer systems design and related service businesses and software publishers. Insurance accounted for 3% of all FIRE businesses and is largely made up of insurance agencies and brokerages. Banks accounted for 3% of businesses in the sector. Major businesses in this sector include Mortgage and non-mortgage loan brokers and the personal and commercial banking industry.

Analysing Hamilton's FIRE sector businesses to regional comparators showed that Oakville leads among comparator regions in terms of percentage of FIRE sector businesses as a factor of total businesses at 17% followed by Toronto and Burlington at 15% each, Mississauga at 14% and Hamilton at 10%.

[2] These include purchases made only in the FIRE sector and do not account for all industry sectors that represent the full supply chain of the FIRE sector.

Figure 3: Percentage of Businesses in the FIRE Sector, 2017



Source: Canadian Business Counts, 2017

Major Employers

The top employers in Hamilton by employee number related to the FIRE sector as reported in D&B Hoovers is shown below.

Table 3: Major Employers in Hamilton FIRE Sector, 2017

Company Name	Employees	Business Activities
Cunningham Lindsey Canada Limited	589	Insurance Agencies and Brokerages
First Ontario Credit Union Limited	400	Credit Unions
Gowling WLG (Canada) LLP	275	Offices of Lawyers
Tandia Financial Credit Union Limited	200	Credit Unions
Teachers Credit Union Limited	100	Credit Unions
SimpsonWigle Law LLP	75	Offices of Lawyers
Ross & McBride LLP	62	Offices of Lawyers
Crawford & Company (Canada) Inc.	60	Insurance Agencies and Brokerages
Agro Zaffiro LLP	50	Offices of Lawyers
Morris, B. Law Group	50	Offices of Lawyers
Asante Capital Management Ltd	50	Investment Banking and Securities Dealing
Mainway Hunter Creighton Insurance Inc.	50	Insurance Agencies and Brokerages
Crawford Smith & Swallow Chartered Accountants LLP	50	Offices of Lawyers

Source: D&B Hoovers, 2018

2.2.5 Employment Projections

In terms of employment projections, the FIRE sector in Hamilton is projected to see sustained growth of approximately 1% year over year from 2018 to 2024. The sector is projected to increase by 6% (980 jobs) from 2018 to 2024. As shown in Table 4, the Fintech/Blockchain sector is projected to show the highest increase in job numbers, followed by jobs in support industries to the FIRE sector.

Table 4: FIRE Sector Job Projections, Hamilton, 2018 -2024

Industry Sectors (NAICS)	Job by Year							2018-2024 Job Change	
	2018	2019	2020	2021	2022	2023	2024	Net Change	% Change
Banks	3,385	3,417	3,445	3473	3502	3,534	3,562	177	5.2%
Insurance	2,378	2,376	2,375	2,376	2,386	2,409	2,428	50	2.1%
Investment	1,799	1,849	1,889	1,923	1,949	1,973	1,992	193	10.7%
Fintech/Blockchain Potential	2,353	2,409	2,460	2512	2558	2605	2,651	298	12.7%
Support Industries to the FIRE Sector	5,981	6,039	6,089	6,133	6,173	6,213	6,250	269	4.5%
Total FIRE Sector	**15,903**	**16,090**	**16,260**	**16,418**	**16,568**	**16,733**	**16,883**	**980**	**6.2%**

Source: EMSI Analyst, 2018. Real estate and rental and leasing data unavailable

Staffing Patterns and Projections

Staffing patterns show the percentage of total industry jobs in a specific occupation. In 2017, the top 10 occupations in the FIRE sectors were:

- Other financial officers - 1,415
- Customer services representatives - financial institutions – 1,041
- Financial auditors and accountants - 882
- Lawyers and Quebec notaries - 844
- Insurance agents and brokers - 768
- Information systems analysts and consultants - 751
- Other customer and information services representatives - 596
- Accounting technicians and bookkeepers - 546
- Computer programmers and interactive media developers - 546
- Legal administrative assistants – 545

The staffing patterns were studied up to 2024, to identify the occupations that are projected to grow or decline. This analysis enables the identification of occupations that will be in-demand and relevant to the economic performance of the sector. Identifying these occupations will allow the community to develop initiatives and skills training to ensure the labour pool have the relevant skills.

Other financial officers will continue to be the top occupation related to the sector. This unit group includes professional occupations in finance such as financial planners, financial examiners and inspectors, financial investigators, financial underwriters, mortgage brokers and trust officers. They are employed by banks, trust companies, investment firms and governments, or they may be self-employed.

Computer programmers and interactive media developers, financial auditors and accountants and information systems analysts and consultants are projected to be high growth occupations. Legal administrative assistants, customer services representatives - financial institutions and insurance agents and brokers are projected to be decline by 2024.

2.2.6 Talent Supply Analysis

In 2016, approximately 332,950 residents aged 15 years and over had a post-secondary certificate, diploma or degree in Hamilton. 23% (77,445 persons) of this population had degrees related to the FIRE sector. Analysing the education profile of Hamilton's graduates, it was determined that 20% of the population with FIRE related degrees had a general Business/commerce degree. Other top degree programs included Business administration, management and operations, Accounting and related services, Business operations support and assistant services, Economics and Marketing

It is understood that the majority of the population with FIRE sector degrees are between the ages of 45 to 64 years. The labour force aged 25 to 44 years makes up 38% of the population while the mature labour force 45 to 64 years makes up 42% of the population.

The staffing projections identified that the top occupations in demand would be financial officers such as financial planners, financial examiners and inspectors, financial investigators, financial underwriters, mortgage brokers and trust officers. They are employed by banks, trust companies, investment firms and governments, or they may be self-employed. Hamilton does seem to have a good proportion of talent supply with business/commerce, economics and accounting skills. It would, however, need to foster skills training initiatives to develop computer programming, information and media development skills if it were to support the projected growth of Fintech/Blockchain industries. In addition, analyzing the current talent available to participate in the workforce, it is identified that Hamilton might face a skills gap in the future.

3. SWOT Assessment

To further inform the recommendations and key trends analysis, a SWOT (strengths, weaknesses, opportunities and threats) assessment of the FIRE sector was completed using insights from the sector baseline and the consultation exercises that were completed. Consultations with stakeholders were conducted from October 2018 to December 2018. This included targeted phone interviews with businesses in the finance, insurance and real estate sector. A workshop was also conducted as part of the Blocktech Connect 2018 Conference.

The major themes of the SWOT assessment are summarized below.

3.1 Strengths

- **Central Location:** As part of the GTAH, Hamilton is centrally located and in close proximity to the city of Toronto and the regional municipalities of Halton and Peel. With access to a population of approximately 2.3 million in the region, the city is a nucleus of economic activity in Southern Ontario, strengthening its presence as part of a regional economy.[3] The city is within an hour drive of Canada's largest international airport and can reach international markets such as Toronto, Montreal, New York, Boston, Philadelphia, Columbus, Dayton, Chicago, and Detroit.
- **Affordability:** The Canadian Real Estate Association statistics show that Hamilton-Burlington is an affordable alternative to all other GTA west communities. On average, Hamilton-Burlington home prices in 2018 average about $186,000-$370,000 less than its competitors.
- **Low Rental Rates:** Similar to housing prices, residential rental rates across the GTA west from 2010 have increased between 18-23% (On average $221-316 increase). Estimates show that Hamilton does show a monthly rental increase of approximately $221. However, comparatively, Hamilton is still considered an affordable alternative to all other GTA west communities.
- **Skilled Labour Force:** 23% (77,445 persons) of Hamilton's population had degrees related to the FIRE sector. The majority of the population have degrees related to business, finance and marketing.
- **Access to 'World-Class' Talent:** As home to the Toronto Stock Exchange (TSX), the ninth-largest stock exchange in the world by market capitalization, the GTAH is considered to be the hub of financial services in Canada. In addition, the region is home to reputed educational institutions such as Ted Rogers School of Management, Rotman School of Management and Schulich School of Business. The Toronto-Kitchener Waterloo corridor is an innovation hub and has a high concentration of fintech firms and skilled talent that is central to the continued growth of the sector.
- **Strong Support Industries:** Hamilton a higher concentration of businesses among comparator communities in support jobs to the fire sector at 24% compared to Toronto (21%), Burlington (18%), Mississauga (18%) and Oakville (17%).

[3] Deloitte (2014). City of Hamilton: The Current and Future State of Hamilton's Advanced Manufacturing Sector, pg. 41

- **Downtown Revitalization:** The City of Hamilton has made major contributions to downtown revitalization through planning and economic development investments and initiatives, including zoning changes and attracting an entrepreneurial audience.

3.2 Weakness

- **Perceptions of the City:** Negative perceptions of the city rooted in its past industrial heritage continue to have a hold on perceptions of the city, both internally and externally and act as an impediment to the growth of the sector.
- **Lack of a Distinctive Identity:** Hamilton's identity for many is still tied to its historical strengths in the industry even though its economy has been driven by knowledge-based and creative economy sectors.
- **Partnerships not Leveraged:** The City has a number of local assets including educational institutions and incubators. However, a common theme highlighted in consultation efforts was that these partnerships were not fully leveraged. Opportunities exist to research and improve awareness and support to take full advantages of local assets.
- **Labour Outflow:** Hamilton shows an outflow of labour to surrounding communities including Burlington, Toronto, Mississauga and Oakville. This indicates that the local FIRE sector does not have enough job opportunities to employ the local labour force.

3.3 Opportunities

- **Growing fintech/Blockchain potential:** Although Hamilton has a comparatively low proportion of businesses and employees in sectors with fintech/Blockchain potential, this industry is seen to be one of the fastest growing sectors in Hamilton, growing by 68% (926 jobs) since 2007
- **Promoting the Office Tenancy Assistance Program (OTAP):** The OTAP program is an interest-free loan program that allows business owners to improve their properties through loans worth up to $450,000 with repayment terms up to five years.
- **Focusing on Success Stories:** Feedback from the business stakeholder's identified the need for the city to focus on success stories to create awareness and improve recognition of the sector both within the community and externally.
- **Reshoring Talent:** The commuting patterns data identified a significant amount of FIRE talent that live in Hamilton commuting to other communities to work. Stakeholders identified that there was an appetite to reshore these talents by promoting telework or co-working stations in Hamilton.
- **Entrepreneurship Training and Support Programs that Adapt to New Economy:** There was a call for the City to work with its businesses, incubators and post-secondary partners to constantly move the needle on any entrepreneurship training and support programs. Suggestions made that current programs are not considering the implications that the new economy is bringing forward i.e. cybersecurity or augmented virtual reality.

3.4 Threats

- **High Vacancy Rates in Downtown:** Perspectives shared by stakeholders identified that while new businesses are interested in locating in Hamilton due to lower rents; those businesses are not seeking investment in the Downtown as quick as it has happened in other communities. Scotiabank's departure from Hamilton's downtown also had a significant contribution to a stagnant office vacancy rate. Positively, vacant storefronts along the downtown have begun to introduce new tenants and as a result will continue to encourage investment. Out of the City's control will be the price points and efforts that commercial office landlords put in making space available or renovating spaces to match the desires of current workspaces.
- **Unfavourable Regulatory Environments:** A 2017 report on the competitive advantage of Canada's financial services sector determined that Canada's regulatory environments lacks a clear and unified policy lead on the growing use of technology in the FIRE sector[4]. The existing regulatory framework is seen to be restrictive, particularly due to the changing nature of the sector (as it grows its Fintech, Blockchain, Cybersecurity industries).[5]
- **'Build to Flip' Mind-Set:** Canadian FinTech entrepreneurs struggle with global expansion and leave the country in pursuit of larger opportunities outside of Canada resulting in a decrease of innovation talent. KPMG's publication series, The Changing Landscape of Disruptive Technologies identifies a number of challenges may affect sector growth. Entrepreneurs are seen to have a 'build to flip mind-set and opt to exit via acquisition. Thus a high proportion of start-ups never reach large-scale commercialization in Canada.
- **Slow Growth:** Although the FIRE sector is projected for growth, this growth will be at a slower pace compared to pre-recessionary rates as high debt rates have also exposed the financial sector to increased vulnerability. In addition, bonds and equity are experiencing declining yields in profit. Low investment returns due to increasing company liabilities and expenses may lead to cutting expenses for the labour force.
- **Uncertain Political Landscape:** The Brexit referendum vote and the renegotiation of the North American Free Trade Agreement (NAFTA) will continue to mount risk and uncertainty in FIRE based industries.
- **Changing Business Models:** Job creation will be highly dependent on technological changes, and thus routine occupations such as bank tellers, agents/brokers of banking and insurance products, customer service representatives are at risk. However, technological changes will ensure increased productivity which could lead to new types of occupations in the FIRE sector (ex. Data Scientists).
- **Climate Change:** On a global scale, climate change may influence the insurance market due to the unpredictability of weather and natural disasters.

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[4] Technology-led innovation in the Canadian financial services sector. Government of Canada. Accessed November 2018, http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/04322.html

[5] Seizing The Opportunity: Building The Toronto Region Into A Global Fintech Leader. Toronto Financial Services Alliance. Accessed November 2018, https://cdn2.hubspot.net/hubfs/4372260/FinTech/BuildingTheTorontoRegionIntoAGlobalFintechLeader.pdf

4. Key Trends

This section of the report focuses on key trends facing the FIRE Sector worldwide.

4.1 Fintech Will Drive The New Business Model

Despite regulation and other potential barriers to entry, the financial sector is seeing tremendous demand for FinTech-related services in areas such as consumer banking and wealth management. This will open up new opportunities for both incumbents and disruptors. For example, the rise of 'robo-investing platforms' offered by both online-only and traditional wealth management companies. New players are using the online-only model to reach millennials and increasingly other segments too. Meanwhile, traditional players are employing this approach to significantly reduce their operational costs.

This experience is being repeated across virtually every sector within financial services. Disruptors in retail banking are using this online-only model to grow market share by offering a highly customised user experience combined with lower fixed costs. There are new high-tech, low-footprint companies with huge potential to drive down costs and offer better customer experience in the marketplace lending arena. Worldwide the financial sector is also seeing upstarts jumping into the global payments and foreign exchange industries, sidestepping existing costly networks by leveraging innovations such as digital currencies.

4.2 The Sharing Economy Will Be Embedded In Every Part Of The Financial System

The sharing economy for the FIRE sector refers to decentralised asset ownership and using information technology to find efficient matches between providers and users of capital, rather than automatically turning to a bank as an intermediary. This trend has already been witnessed with peer-to-peer lending platforms, often in partnership with traditional banks (Ex. Tangerine). Many of these new companies are designing and building services that focus on a specific sliver of the value chain, or a specific subset of customers. Consumers are getting smarter about their options, too. Recent PwC research shows that 44% of those who earn less than $75,000 per year would trust a technology company for peer-to-peer payments, and this rises to 68% among earners making more than $100,000.[6]

A number of enabler companies target specific verticals like student debt, or connecting debtors and investors. They are building platforms that enable ordinary individuals to raise funds and draw credit lines from retail investors. Apple has filed a patent application for "person-to person payments using electronic devices" that could allow iPhone users to transfer money more easily. This could potentially commoditise retail banking even further. Instead of using relatively high cost bankers to broker the connection between those who have and those who want, the disruptors are using technology to make the match: faster, cheaper, and maybe even better.

[6] PwC's 2015 Consumer Banking Survey

Financial institutions should seriously consider sharing economy opportunities such as partnerships with digital intermediaries or even end users with an eye towards how they might deliver services at much lower costs. With their relatively informal profiles, start-ups may not, at first, seem like a threat. But in the new digital age, when businesses as well as individuals are increasingly techsavvy, new customers will gravitate toward lower fees, convenience, and ease-of-use. And once there is enough critical mass and liquidity, the network effect takes over, and the disruptors' market share could grow exponentially.

4.3 Blockchain Will Shake Things Up

Several FIRE industry groups have come together to commercialize technology and apply it to real financial services scenarios. This trend is expected to continue as blockchain and FinTech move from a largely retail focus to include more institutional uses. While many of these companies may not survive the next three to five years, there are several financial sector reports that believe the use of the blockchain 'public ledger' will go on to become an integral part of financial institutions' technology and operational infrastructure in the future.

There are two aspects of blockchain technology that have captivated so many executives, start-up founders and private equity firms around the world. First, blockchain could make the financial services industry's infrastructure much less expensive. Second, the list of potential uses is almost limitless, from financial transactions to automated contractual agreements and more.

Blockchain systems could be far cheaper than existing platforms because they remove an entire layer of overhead dedicated to confirming authenticity. In a distributed ledger system, confirmation is effectively performed by everyone on the network, simultaneously. This so-called 'consensus' process reduces the need for existing intermediaries who touch the transaction and extract a toll in the process. In financial services, that includes those who move money, adjudicate contracts, tax transactions, store information and so on.

The sheer range of applications has attracted FinTech providers who hope to develop solutions both narrow and broad. In the next three to five years, PwC[7] sees transaction volumes and the associated profit pools shifting from intermediaries toward the owners of new highly efficient blockchain platforms. These transactions could include transferring digital or physical assets, protecting intellectual property, and verifying the chain of custody. In an era of cyber-crime and stringent regulatory requirements, a highly fraud-resistant system for protecting and authenticating almost any kind of transaction could have a revolutionary impact on the financial services industry.

4.4 Digital Becomes Mainstream

Two decades ago, many large financial institutions built 'e-business' units to ride a wave of e-commerce interest. Eventually, the initial 'e' went away, and this became the new normal. Internet development and large technology investments drove unprecedented advances in efficiency.

Today's digital wave has the same markers: separate teams, budgets and resources to advance a digital

[7] https://www.pwc.com/us/en/financial-services/ publications/qa-what-is-blockchain.html

agenda. This agenda extends from customer experience and operational efficiency to big data and analytics. In financial services, this approach applied to payments, retail banking, insurance and wealth management, and migrating toward institutional areas such as capital markets and commercial banking.

4.5 'Customer Intelligence' Will Be The Most Important Predictor Of Revenue Growth And Profitability

Today's technology advances have given businesses access to exponentially more data about what users do and want. It is an amazing opportunity for whoever can use analytics to unlock the information inside, to give customers what they really want.

For example, consider millennials: a key demographic, and one that banks generally have targeted through digital channels. Financial institutions should look below the surface to examine the behavioural attributes that drive consumer decisions. The following are key to millennial behaviour: they tend to build wealth as a result of owning a small business, investments, or real estate; they turn to social networks for content, product reviews, opinions and referrals; and they look for opportunities to improve their financial 'health'. Financial institutions that sift through available data can engage millennials by being ready with the right offer when relevant life events present buying opportunities.

The data is everywhere, and over the next five years, hyper-connectivity will give financial institutions the opportunity to use it. It will not only be computers and smart devices that record and communicate data, but everything from cars to coffee machines. This is referred to as the 'Internet of Things'. Customers are learning more about the value of their personal data. Expect to see them tendering out their information to banks, insurers and asset managers in return for the best deal, much as affinity groups already do. Within asset management, hyper-connectivity will also pave the way for greater product customisation. For life and health insurers, wearable computing (building on the technology already widely used in fitness sensors), could make the underwriting process more collaborative. For example, insurers may use the real-time insights into policyholder health and behaviour to offer discounts, eliminate the need for lengthy medical checks and simplify the contract process.

With other developments, this will also intensify price competition and pressure on cost. Big data analytics, sensor technology and the communicating networks that make up the Internet of Things will allow insurers to anticipate risks and customer demands with far greater precision than ever before. The benefits would include not only keener pricing and sharper customer targeting, but a decisive shift in insurers' value model from reactive claims payer to preventative risk advisor. But it also implies that we will see a divergence between companies who use data to their advantage and those who do not. The winners will be able to price products based on a deeper understanding of risk; the losers will merely compete on price, compressing their margins with lower revenues and proportionately higher pay-outs.

4.6 Cyber-Security Will Be One Of The Top Risks Facing Financial Institutions

Financial services executives are already depressingly familiar with the impact that cyber-threats have had on their industry. In PwC's 19th Annual Global CEO Survey, 69% of financial services' CEOs reported that they are either somewhat or extremely concerned about cyber-threats, compared to 61% of CEOs across all sectors.

Unfortunately, it is not likely to change for the better in the coming years, due to the following forces: Use of third-party vendors; Rapidly evolving, sophisticated and complex technologies; Cross-border data exchanges; Increased use of mobile technologies by customers, including the rapid growth of the Internet of Things; and, heightened cross-border information security threats.

Until now, IoT growth in financial services has primarily occurred in payments, insurance and banking. Banks are forming partnerships with wearable technology manufacturers to allow customers to make mobile payments using watches or fitness trackers. Insurers are using telematics technology to monitor driving habits and provide discounts to safe drivers.

Cyber-security is the leading challenge to the adoption of IoT technology because insecure interfaces increase the risk of unauthorised access. Here are some of the concerns:

- Attack surface: Hackers can gain entry to a corporate network through an IoT device.
- Perimeter security: IoT technology relies on cloud-based services, so it will be challenging to implement effective perimeter defences.
- Privacy concerns: The pervasiveness of IoT data collection coupled with advanced analytic capabilities could potentially result in consumer privacy violations.
- Device management: Many IoT devices currently do not support implementation of strong security controls, and maintaining a security baseline will only get harder as IoT devices proliferate.

Fortunately, the same capabilities that make networks more vulnerable can strengthen defences as well. Financial institutions can use big data analytics to monitor for covert threats. This helps them identify evolving external and internal security risks and react much more quickly. And the miniaturisation of technology that has driven smartphone growth has also made biometric security more practical. For example, some banks allow customers to access their accounts using thumbprints, or even voice and facial recognition – an approach that is more convenient for consumers and improves security.

Cyber-security is already important, and it will become even more significant for institutions and their regulators in the future. The challenge will be to balance safety with customer convenience. For full-scale providers who are trying to maintain visibility across channels, this is harder than it looks. But there are guidelines which can help financial institutions identify and prioritise threats, quickly detect and mitigate risks and understand security gaps. With a risk-based framework, companies can communicate and collaborate as necessary, decide how to design, monitor and measure their cyber-security goals, and keep their data safe.

5. Value Proposition

The value proposition for attracting and encouraging FIRE Sector activity must leverage local and regional strengths, and develop a unique position that differentiates Hamilton from other parts of the GTAH.

The following key points have been assembled based on the results of the industry baseline, sector consultations and key trends. They represent some of the key differentiating points that should be highlighted in local marketing materials to identify Hamilton's position in the FIRE sector, and enhance its economic development standing.

5.1 Operating Cost Environment

The operating cost environment in a jurisdiction is an important factor to each of the targeted sectors. From a business perspective, locating in Hamilton allows firms to run leaner operations compared to the well-known industry locations such as Toronto and Mississauga. From a talent perspective, Hamilton provides highly skilled workers with a much lower cost of living compared to most other locations in the GTAH. Considering the demand for office market across the GTAH, Hamilton's market is well positioned to offer downtown office space with lower lease rates.

The Office Tenancy Assistance Program alsp provides financial assistance to either building owners or tenants for eligible leasehold improvements to office buildings located within Downtown Hamilton, Community Downtowns, the Mount Hope / Airport Gateway, Business Improvement Areas (BIAs) and the commercial corridors along Barton Street, east of the Barton Village BIA and along Kenilworth Avenue North as identified in the Downtown and Community Renewal Community Improvement Project Area By-law. The intent of the Program is to facilitate the increased attractiveness and marketability of the office stock and reduce the office vacancy rate by attracting new office tenants and owner-occupied office uses from outside the City, and to assist existing businesses to expand. Acting as a lender, the City provides financial support for the Program in the form of a zero interest loan

5.2 Institutional Assets at the Forefront

The post-secondary institutions in Hamilton are in the process of developing tailored programs to ensure the FIRE industry has the talent it needs to grow into the future. Mohawk College is launching its Data Analytics and Management Program and eventual Cybersecurity Program that will not only support the growth of talent within these industries, but support the development of these industries and the training and business support channels that incubators or innovation centres will utilize. McMaster University and Innovation Factory are also both expanding its FIRE related programs to support the emerging trends facing the FIRE sector, particularly to businesses who are seeking IT solutions as part of their product/service.

5.3 Supporting Government

The FIRE sector benefits from a supportive government at the local, provincial and federal levels. As identified in the Hamilton Economic Development Strategy, the FIRE sector is a priority sector. The Provincial government is a key ally in helping to promote the industry across Ontario and around the world. Specific to the sector, the provincial and federal government offers incentives aimed at the development of fintech innovation hubs that support and nurture fintech companies.

5.4 Compatible and Flexible Spaces

Hamilton offers a range of office and commercial spaces that have the potential to support these targeted industry activities on a temporary and permanent basis, which is further enhanced by a comparative lack of traffic congestion and parking issues that are often experienced in other larger municipalities. Recent investments made by co-working space providers have also introduced teleworking options and short term rental-based spaces.

6. Recommendations

The City of Hamilton has the advantage of location and access to a 'world class' talent that it can leverage to support and grow the sector. The high concentration of support industries to the sector entails that the City can play an important role in supporting the GTAH to ensure continued growth on a regional scale.

6.1 Key Takeaways

Innovation will be central to growth in the financial services sector

The 2017 market study by Statistics Canada[8] identified that the financial services sector would undergo transformations through the introduction of innovative technologies which will result in solutions that are both convenient and cost-effective for both consumers and businesses.

FinTech transforming traditional finance business models

FinTech is the new technology and innovation to improve activities in finance. Cryptocurrency, mobile banking, alternative credit scoring companies that leverage social media, payments networks using distributed ledger technology and digital assistants are some examples of Fintech redefining consumer finance.

FinTech has made it possible for SME's to secure new forms of financing

Two emerging business models show promise in providing new forms of financing for Small and medium-sized enterprises (SMEs) that have difficulty accessing financing from formal institutions (due to the lack the credit history or collateral needed to secure a loan). These business models are peer-to-peer (P2P) lending and equity crowdfunding. P2P lending connects lenders and borrowers in an online platform to fund loans. Equity crowdfunding allows for SMEs to raise capital through an online platform that has a pre-built list of networks and potential investors

The real estate sector is projected to be strong

The growth and viability of the sector are influenced by housing affordability, transit changes and technology development. Although increasing property rates in almost all metropolitan regions have resulted in long-term renters, the sector's long-term growth prospects are projected to be strong due to strong population growth. In addition, the growth of the resale market has led to increased real estate activity.[9]

Smart technologies transforming real estate businesses

The 2019 Emerging Trends in Real Estate report[10] identifies the top real estate industry disruptors as

[8] http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/04322.html

[9] www.jobbank.gc.ca/content_pieces-eng.do?cid=12306

[10] https://www.pwc.com/ca/en/real-estate/assets/p461421-emerging-trends-in-real-estate-report-2019.pdf?utm_source=2019-etre-report&utm_medium=referral&utm_campaign=2019-emerging-trends-in-real-estate-report

Drone technology, autonomous vehicles, cybersecurity and construction technology. Big data analytics and Blockchain are also expected to impact the sector and transform business models and customer expectations.

TAMI and FinTech reshaping the real estate sector

TAMI (Technology, Advertising, Media and Information) and FinTech companies are usually start-ups and SME's and represent a fast-growing part of the business world looking for atypical spaces to house their businesses. These include lofts, converted spaces and co-working spaces and adaptive reuse buildings[11]. These businesses have the ability to fill vacant spaces and stimulate neighbourhood revitalization

Opportunities exist for FinTech and traditional financial institution to form partnerships

Traditional financial institutions may be at risk as FinTech transforms the delivery of financial services. However, opportunities exist for financial institutions to partner with existing fintech businesses and invest in technology innovation centres across the province. Examples include the National Bank of Canada partnership with online lender Thinking Capital to expand small-business loans to Canadian companies.

6.2 Recommendations

The FIRE Sector Feasibility Study has been undertaken to build a body of research and understanding to support the development of the City's FIRE Sector. The primary purpose of the recommendations that follow is to help position and prepare the City for future FIRE sector investment and strategic planning.

The recommendations are:

1. Create a business ambassador program for the FIRE sector. The Business Ambassador Program will encourage local business leaders to share "leads" by providing one point of contact (dedicated e-mail) in order that Economic Development may follow up. Promoting the Business Ambassador Program will require a partnership between staff, politicians and business leaders.

   Part of the Program would include the creation of a toolkit that would include promotional videos, showcasing Hamilton's FIRE sector and quality of talent available as well as contain other business attraction materials.

   Examples of successful Business Ambassador Programs include Fredericton, Hamilton, Quebec City, Regina, Winnipeg and Calgary.

2. Connect with Mohawk College and McMaster University and develop a model cybersecurity, fintech and big data analytics curriculum package that pitch the benefits of these future programs to future employment, career advancement and workforce retention in FIRE-based industries.

[11] http://www.nelsononline.com/news-and-insights/top-5-trends-with-tami-companies

3. Seek to establish and maintain formal networks with other municipalities seeking to undertake similar initiatives, in order to learn from their activities, share best practices, and coordinate efforts to tap into external financial resources for these initiatives.
4. In conjunction with Mohawk College, investigate the development of a formal incubator for finance and insurance technology start-ups and testing in Hamilton. The incubator can also support in developing linkages between FIRE and other IT related incubation hubs.
5. Investigate the use of finance and insurance technologies across municipal platforms. Work with local FIRE sector industries to support in the introduction of these technologies and allow the City to illustrate itself as a testing environment for future fintech or insurance applications.
6. Host an ongoing FIRE related Forum. Future forum topics can include fintech, cybersecurity, and big data analytics.

Appendix I – FIRE Sector Definitions

The FIRE sector was defined using the North American Industry Classification System (NAICS) codes at the six-digit level.

FIRE Sub-Sectors	NAICS	Description
Banking	521110	Monetary authorities - central bank
	522111	Personal and commercial banking industry
	522112	Corporate and institutional banking industry
	522130	Local credit unions
	522190	Other depository credit intermediation
	522210	Credit card issuing
	522220	Sales financing
	522291	Consumer lending
	522299	All other non-depository credit intermediation
	522310	Mortgage and non-mortgage loan brokers
	522321	Central credit unions
	522329	Other financial transactions processing and clearing house activities
	522390	Other activities related to credit intermediation
Insurance	524111	Direct individual life, health and medical insurance carriers
	524112	Direct group life, health and medical insurance carriers
	524121	Direct general property and casualty insurance carriers
	524122	Direct, private, automobile insurance carriers
	524123	Direct, public, automobile insurance carriers
	524124	Direct property insurance carriers
	524125	Direct liability insurance carriers
	524129	Other direct insurance (except life, health and medical) carriers
	524131	Life reinsurance carriers
	524132	Accident and sickness reinsurance carriers
	524133	Automobile reinsurance carriers
	524134	Property reinsurance carriers
	524135	Liability reinsurance carriers
	524139	General and other reinsurance carriers
	524210	Insurance agencies and brokerages
	524291	Claims adjusters
	524299	All other insurance related activities
Investment	523110	Investment banking and securities dealing
	523120	Securities brokerage
	523130	Commodity contracts dealing

FIRE Sub-Sectors	NAICS	Description
	523140	Commodity contracts brokerage
	523210	Securities and commodity exchanges
	523910	Miscellaneous intermediation
	523920	Portfolio management
	523930	Investment advice
	523990	All other financial investment activities
	526111	Trusteed pension funds
	526112	Non-trusteed pension funds
	526911	Equity funds - Canadian
	526912	Equity funds - foreign
	526913	Mortgage funds
	526914	Money market funds
	526915	Bond and income / dividend funds - Canadian
	526916	Bond and income / dividend funds - foreign
	526917	Balanced funds / asset allocation funds
	526919	Other open-ended funds
	526930	Segregated (except pension) funds
	526981	Securitization vehicles
	526989	All other miscellaneous funds and financial vehicles
Fintech/Blockchain Potential	511211	Software publishers (except video game publishers)
	541514	Computer systems design and related services (except video game design and development)
Real Estate and Rental and Leasing	531111	Lessors of residential buildings and dwellings (except social housing projects)
	531112	Lessors of social housing projects
	531120	Lessors of non-residential buildings (except mini-warehouses)
	531130	Self-storage mini-warehouses
	531190	Lessors of other real estate property
	531211	Real estate agents
	531212	Offices of real estate brokers
	531310	Real estate property managers
	531320	Offices of real estate appraisers
	531390	Other activities related to real estate
	532111	Passenger car rental
	532112	Passenger car leasing
	532120	Truck, utility trailer and recreational vehicle (RV) rental and leasing
	532210	Consumer electronics and appliance rental
	532280	All other consumer goods rental

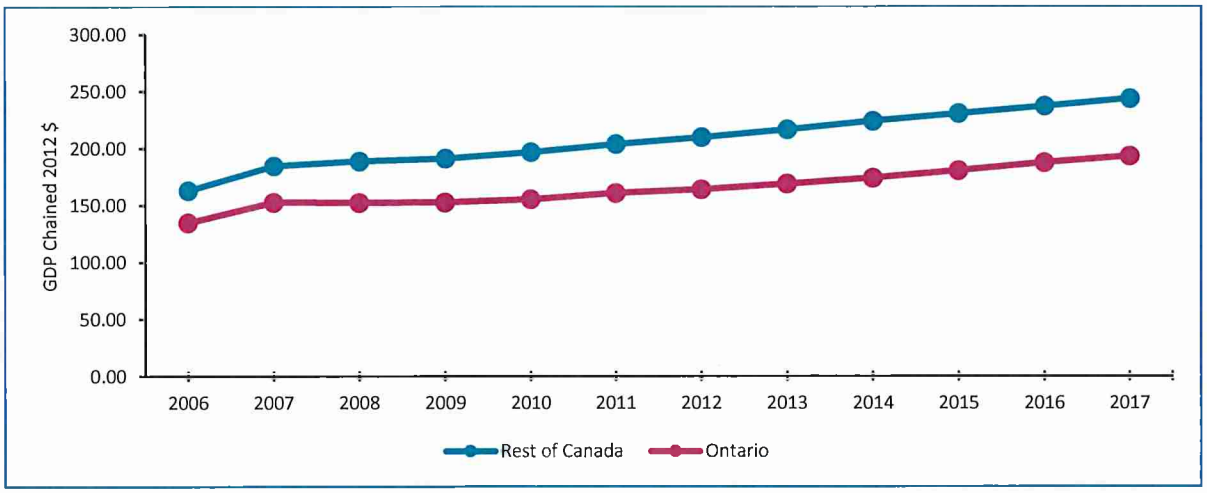
FIRE Sub-Sectors	NAICS	Description
	532310	General rental centres
	532410	Construction, transportation, mining, and forestry machinery and equipment rental and leasing
	532420	Office machinery and equipment rental and leasing
	532490	Other commercial and industrial machinery and equipment rental and leasing
	533110	Lessors of non-financial intangible assets (except copyrighted works)
Support Industries to FIRE Sector	541110	Offices of lawyers
	541212	Offices of accountants
	541213	Tax preparation services
	541215	Bookkeeping, payroll and related services
	561440	Collection agencies
	561450	Credit bureaus
	611410	Business and secretarial schools

Appendix II – Industry Baseline

The Canadian finance, insurance, real estate, rental and leasing (FIRE) sector has grown in strength as contributions to total industry GDP increased from $352.46 billion in 2010 to $436.74 billion in 2017. The sector is a key contributor to the nation's economic performance as it accounted for 23% of total industry GDP in 2017. As illustrated in **Error! Reference source not found.**, Ontario's FIRE sector accounted for 44% of the nation's FIRE sector GDP. Similar to national GDP, the province's FIRE sector has been growing since 2010, increasing from $155.56 billion in 2010 to $193 billion in 2017. In 2017, the FIRE sector contributed to 27% of Ontario's GDP. Analyzing individual sub-sectors, it was determined that:

- Real Estate and Rental and Leasing - accounted for 48% of FIRE sector GDP with contributions of $92.40 billion
- Finance and Insurance - accounted for 35% of FIRE sector GDP with contributions of $66.88 billion
- Sectors with Fintech/Blockchain potential – accounted for 9% of FIRE sector GDP with contributions of $18.30 billion
- Support Industries to the FIRE Sector – accounted for 8% of FIRE sector GDP with contributions of $15.60 billion

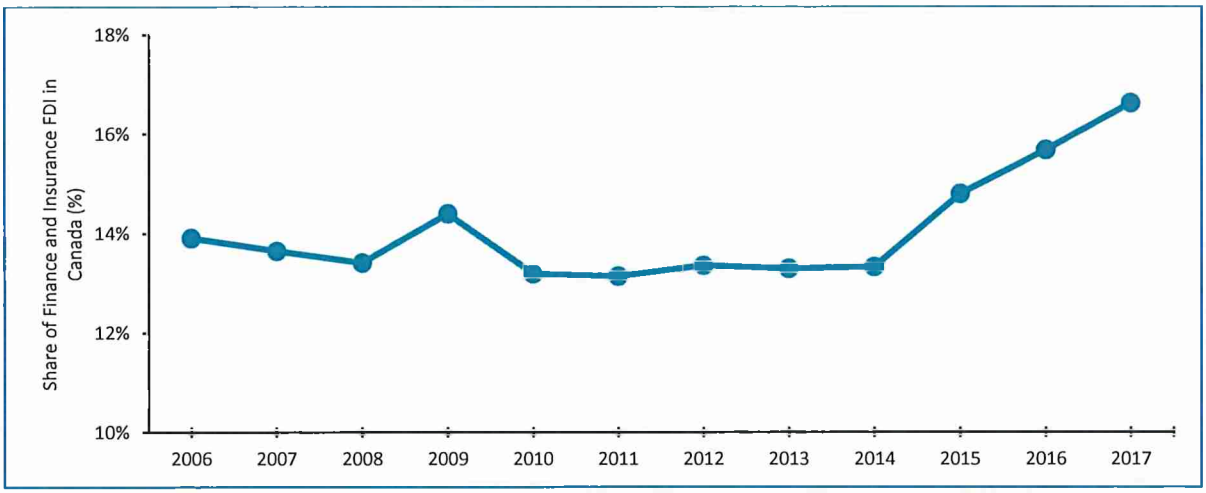
Figure 4: Gross domestic product (GDP) at basic prices, FIRE Sector, Ontario and Rest of Canada, 2006-2017



Source: Statistics Canada. Table 36-10-0402-01

The finance and insurance accounted for 17% ($137 billion) of Foreign Direct Investment (FDI) in Canada in 2017 (**Error! Reference source not found.**). Investment by the sector grew from $61 billion in 2006 to $137 billion in 2017.

Figure 5: Share of Finance and Insurance FDI in Canada, 2006-2017

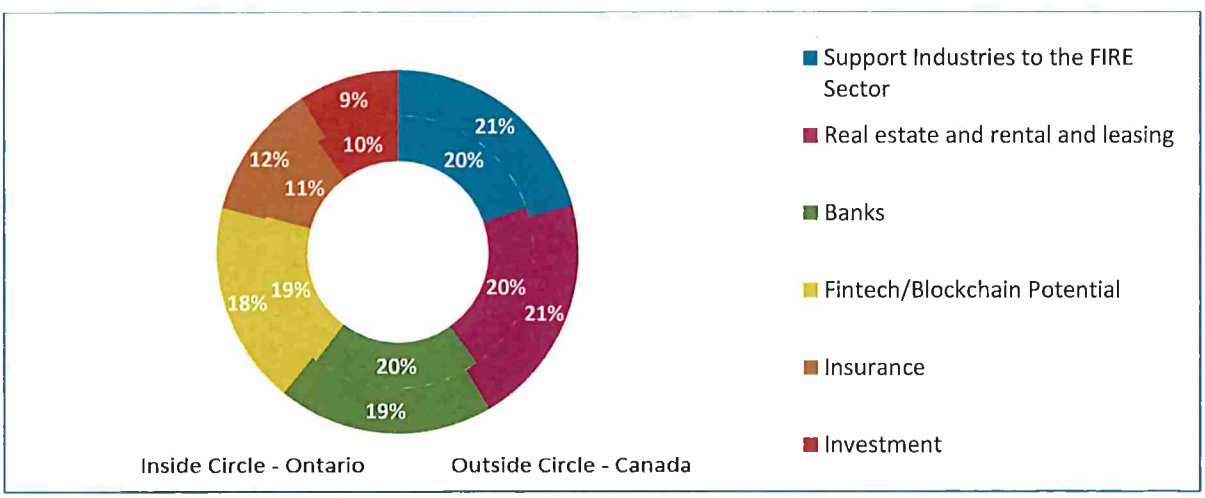


Source: Statistics Canada. Table 36-10-0009-01

Jobs in the sector grew by 18% in Canada and 22% in Ontario from 2006 to 2016. In 2017, the Canadian FIRE sector accounted for 2,001,918 jobs (10% of total employment) in Canada. Approximately 45% of these jobs are in the province of Ontario. The FIRE sector in Ontario contributed to 902,191 jobs (12% of total provincial employment) in 2017.

Figure 1 shows the proportion of employment in each of the FIRE sub-sectors both in Canada and Ontario in 2017. The real estate and rental and leasing and banking sub-sectors were the major contributor of FIRE sector jobs in Ontario and Canada, respectively. Industry sectors with Fintech/Blockchain Potential are also seen to be a major contributor to jobs, accounting for 19% of all FIRE sector jobs in Ontario. This sector saw the highest growth of 38%, approximately 55,332jobs from 2007 to 2017.

Figure 6: Percentage of Jobs in the FIRE Sector in Canada & Ontario, 2017



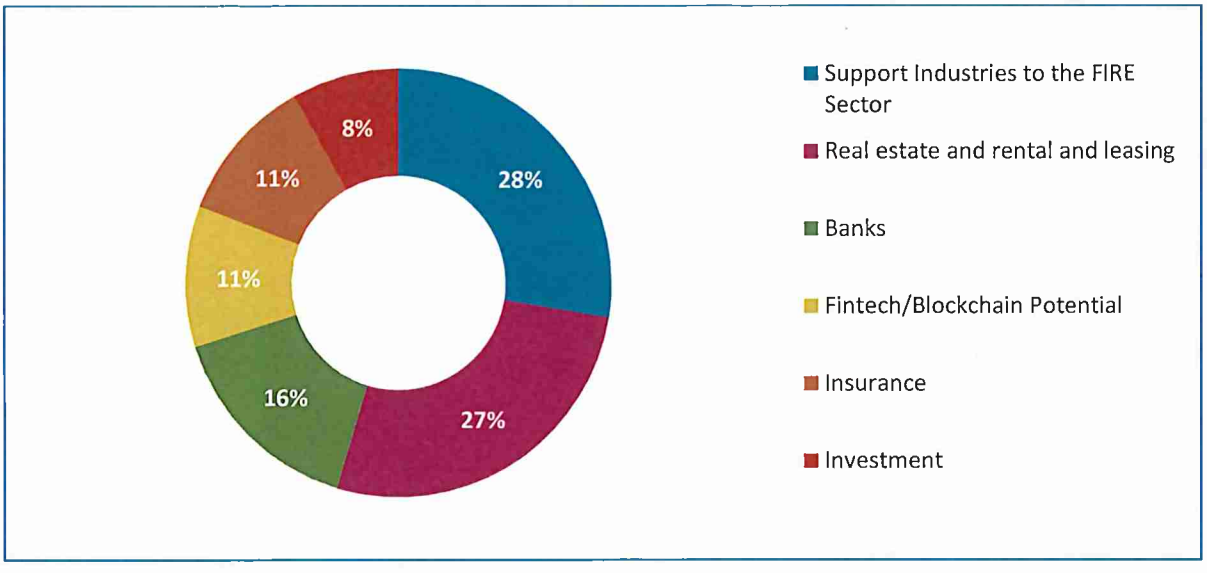
Source: EMSI Analyst, 2018. Real estate and rental and leasing data are for 2016.

Sector Employment

In 2017, the FIRE sector in Hamilton accounted for 21,441 jobs, representing 8% of the city's total employment. Of the 21,441 jobs in the FIRE sector, the majority can be attributed to real estate and rental and leasing and support industries to the sector (Figure 2). The support industries include legal services, accounting, tax preparation, bookkeeping and payroll services, business support services and business schools and computer and management training.

Comparing Figure 2 and Figure 3, it can be determined that jobs related to sectors with Fintech/Blockchain potential are low in Hamilton at 11% or 2,288 jobs.

Figure 7: Percentage of Jobs in the FIRE Sector, 2017



Source: EMSI Analyst, 2018. Real estate and rental and leasing data are for 2016.

Error! Reference source not found. shows that jobs in the FIRE sector grew by 18% (3,206 jobs) from 2007 to 2017. Although the Fintech/Blockchain sector has a comparatively lower proportion of jobs, this sector is seen to be one of the fastest growing, adding approximately 926 jobs since 2007 (**Error! Reference source not found.**).

Error! Reference source not found. also shows the location quotient (LQ) for Hamilton in 2017. LQ's helps to identify the concentration of FIRE sector jobs in the city relative to Ontario. The support industries are seen to be the only sector with a high concentration of jobs compared to Ontario while the Insurance sector shows job concentration on par with the province. The Fintech/Blockchain Potential indicates a sector that is performing below average relative to the province.

Specific industry sectors with a high concentration of jobs in Hamilton:

- Business schools and computer and management training – LQ 2.87
- Commercial and industrial machinery and equipment rental and leasing – LQ 2.54
- Lessors of nonfinancial intangible assets (except copyrighted works) – LQ 2.31
- Automotive equipment rental and leasing – LQ 1.81
- Business support services – LQ 1.78

- Other funds and financial vehicles – LQ 1.59
- Legal services – LQ 1.45

Figure 8: Job Growth in the FIRE Sector, 2007-2017 and 2017 Location Quotients for Industry Sector

Industry Sectors (NAICS)	Jobs by Year		2007-2017 Job Change		LQ 2017	
	2007	2017	Absolute Change	% Change	LQ	Concentration
Banks	**2,849**	**3,330**	**481**	**17%**	**0.77**	**Average**
Monetary authorities - central bank	-	-	-	-	-	-
Depository credit intermediation	2,363	2,903	540	23%	0.84	Average
Non-depository credit intermediation	232	112	-120	-52%	0.29	Low
Activities related to credit intermediation	254	315	61	24%	0.76	Average
Insurance	**2,094**	**2,370**	**276**	**13%**	**1.02**	**Average**
Insurance carriers	1,078	1,266	188	17%	0.99	Average
Agencies, brokerages and other insurance related activities	1,016	1,104	88	9%	1.05	Average
Investment	**1,039**	**1,733**	**694**	**67%**	**0.81**	**Average**
Securities and commodity contracts intermediation and brokerage	254	647	393	155%	1.17	Average
Securities and commodity exchanges	-	-	-	-	-	-
Other financial investment activities	765	983	218	28%	0.69	Low
Pension funds	-	-	-	-	-	
Other funds and financial vehicles	20	103	83	415%	1.59	High
Fintech/Blockchain Potential	**1,362**	**2,288**	**926**	**68%**	**0.56**	**Low**
Software publishers	49	175	126	257%	0.36	Low
Computer systems design and related services	1,313	2,113	800	61%	0.59	Low
Real estate and rental and leasing	**5,181**	**5,803**	**622**	**12%**	**1.33**	**High**
Lessors of real estate	1,796	2,172	376	21%	1.32	High
Offices of real estate agents and brokers	1,485	1,395	-90	-6%	0.99	Average
Activities related to real estate	881	949	68	8%	1.44	High
Automotive equipment rental and leasing	266	369	103	39%	1.81	High
Consumer goods rental	481	159	-322	-67%	1.28	High
General rental centres	-	-	-	-	-	
Commercial and industrial machinery and equipment rental and leasing	272	547	275	101%	2.54	High
Lessors of non-financial intangible assets (except copyrighted works)	-	212	-	-	2.31	High
Support industries to the FIRE Sector	**5,710**	**5,917**	**207**	**4%**	**1.40**	**High**
Legal services	1,556	1,987	431	28%	1.45	High
Accounting, tax preparation, bookkeeping and payroll services	1,854	1,662	-192	-10%	1.01	Average

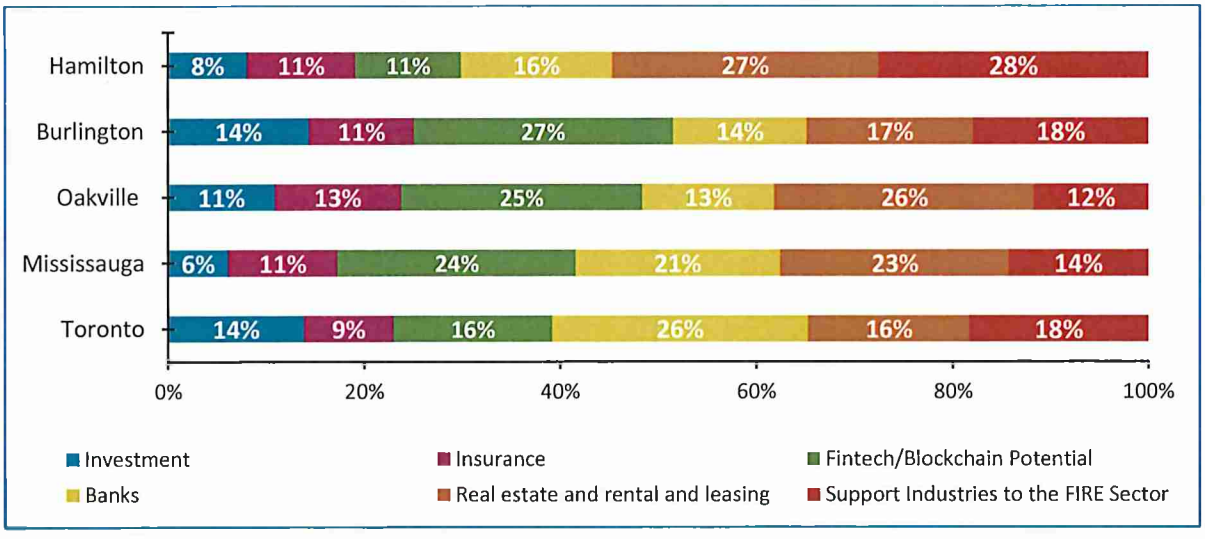
Industry Sectors (NAICS)	Jobs by Year		2007-2017 Job Change		LQ 2017	
	2007	2017	Absolute Change	% Change	LQ	Concentration
Business support services	2,099	2,009	-90	-4%	1.78	High
Business schools and computer and management training	201	259	58	29%	2.87	High
Total FIRE Sector Jobs	**18,235**	**21,441**	**3,206**	**18%**	**0.70**	**Average**

Source: EMSI Analyst, 2018. Real estate and rental and leasing data are for 2016.

Comparing Hamilton's FIRE sector jobs to regional comparators (**Error! Reference source not found.**), namely, Toronto, Mississauga, Oakville and Burlington, it was determined that the proportion of FIRE sector jobs in Hamilton at 8% is lower than FIRE sector jobs in Toronto (19%), Mississauga (13%), Oakville (13%) and Burlington (12%). Other assumptions include:

- Hamilton leads among comparator communities in support jobs to the fire sector at 28% compared to Toronto (18%), Burlington (18%), Mississauga (14%) and Oakville (12%)
- Hamilton has a similar proportion of real estate and rental and leasing jobs (27%) as Oakville and leads compared to Mississauga (23%), Toronto (16%) and Burlington (17%)
- Hamilton lags among comparator communities in banking sector jobs at 16% compared to Toronto (26%), Mississauga (21%) and leads compared to Oakville (13%) and Burlington (14%)
- Hamilton lags among comparator communities in jobs with fintech/Blockchain potential at 11% compared to Burlington (27%), Oakville (25%), Mississauga (24%) and Toronto (16%)
- Hamilton has a similar proportion of insurance jobs (11%) as Burlington and Mississauga and leads compared to Toronto (9%)
- Hamilton lags among comparator communities in investment jobs at 8% compared to Toronto (14%), Burlington (14%) and Oakville (11%) and leads compared to Mississauga (6%)

Figure 9: Percentage of Jobs in the FIRE Sector, 2017



Source: EMSI Analyst, 2018. Real estate and rental and leasing data are for 2016.

Labour Force Commuting Patterns

The labour flow of the workforce provides a representation of the movement of labour in and out of a community. It compares the number of jobs held by residents of a community to the number of jobs held by people working in the community. The residents of the community may work in the same community or travel outside the community to work. Similarly, the people working in the community may be its residents or people living outside the community but still commute to work in the community. **Error! Reference source not found.** shows the data for the residents of Hamilton and those employed in Hamilton in the FIRE sector.

- Residents of Hamilton - Approximately 51,205 residents of Hamilton may be employed in the FIRE sector. These include residents who work in Hamilton's FIRE sector (32,850), and residents who travel outside Hamilton to work in the FIRE sector of other municipalities (18,355)
- Employed in Hamilton - Approximately 43,490 people are employed in Hamilton's FIRE sector. These include Hamilton residents who work in Hamilton's FIRE sector (32,850) and residents from other municipalities commuting to work in Hamilton's FIRE sector (10,640)

Taking into consideration that approximately 51,205 people are employed in the FIRE sector, only 43,490 people are employed in Hamilton's FIRE sector. The city is thus losing almost 7,715 people. This is identified as a net export of labour. The net export (or a negative number) indicates that a community does not have enough jobs for its residents and thus they need to travel outside the community to work.

Figure 10: Labour Flow by Industry, 2016

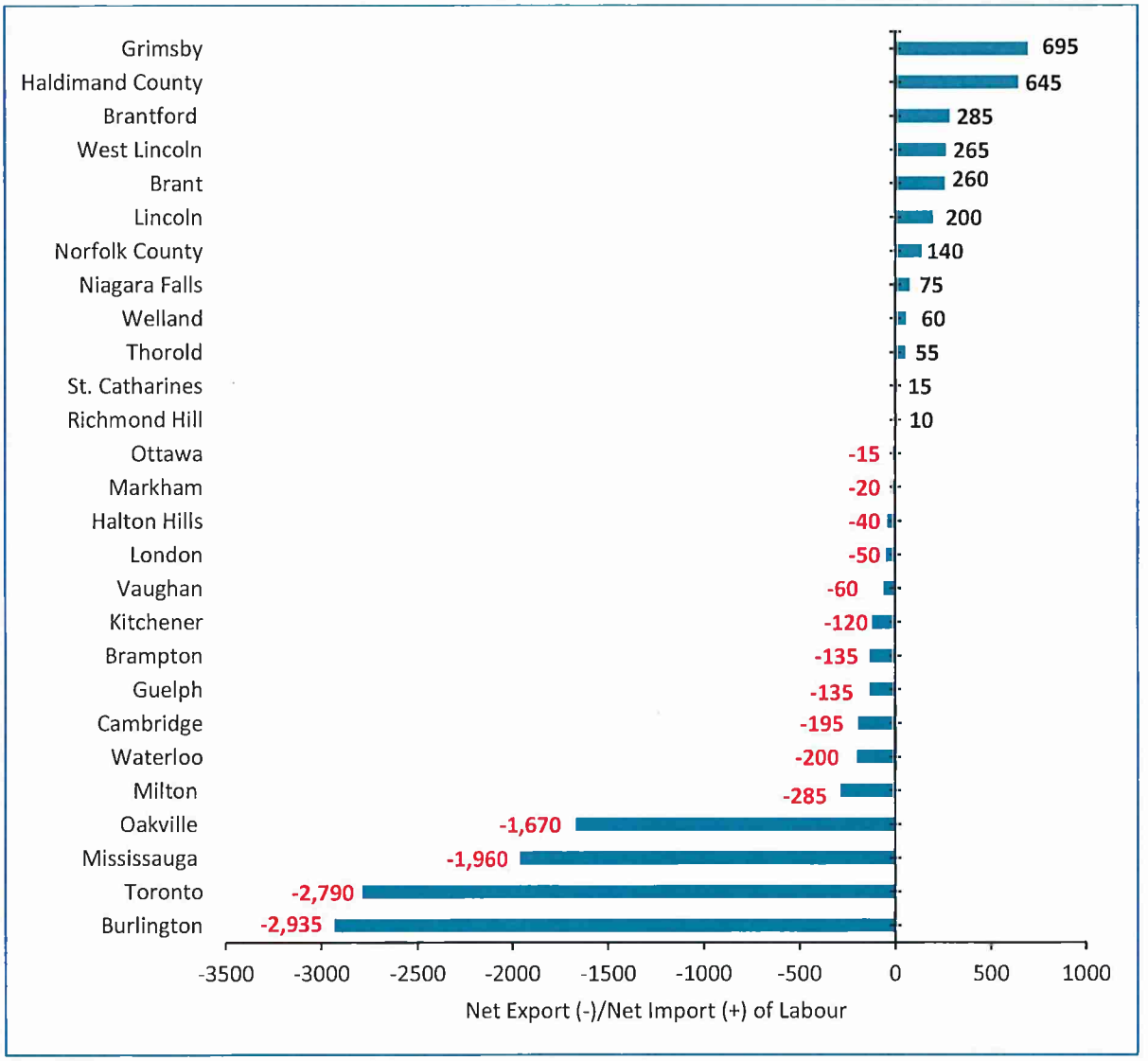
FIRE Sub-sectors	Resident of Hamilton	Employed in Hamilton	Net Import (+)/Net Export (-)
Banks	4,235	3,130	-1,105
Insurance	3,625	2,495	-1,130
Investment	1,305	810	-495
Fintech/Blockchain Potential	11,235	8,125	-3,110
Real estate and rental and leasing	3,160	2,885	-275
Support Industries to the FIRE Sectors	27,645	26,045	-1,600
Total Fire Sector Jobs	**51,205**	**43,490**	**-7,715**

Source: Statistics Canada, 2016 Census of Population

As mentioned earlier, although Hamilton attracts 10,640 people from outside the community to work in its FIRE sector, it still is losing 18,355 of its residents to other communities. **Error! Reference source not found.** illustrates the labour flow of Hamilton's FIRE sector.

The data shows that Hamilton sees a net export of labour to comparator communities such as Burlington, Toronto, Mississauga and Oakville while attracting residents of Grimsby, Haldimand County Brantford and West Lincoln to work in Hamilton's FIRE sector.

Figure 11: Net Export (-)/Net Import (+) of Labour by Selected Communities, 2016



Source: Statistics Canada, 2016 Census of Population

Supply Chain Analysis

The supply chain analysis can be used to find leakage in the economy, or where money is leaving the region that might otherwise be captured. It can also be used as an exploratory tool for deciding what businesses might be a good fit for the City.

Error! Reference source not found. shows the industry supply chain for the FIRE sector in Q3 2018 and is based on the 2014 Input-Output Year. The in-region and imported purchases represent the percentage of dollars flowing from one sector to another sector. The data is obtained from Emsi Analyst

Input-Output model and uses data from Statistics Canada National Symmetric Input-Output table, National Household Survey commuting flows, Canadian Business Patterns, and Emsi in-house data sets.

In 2014, $401.59 million was made in purchases in the FIRE sector alone[12]. Of these, approximately $ $ $303.06 million (75%) were in-region purchases, meaning that the money was spent within the region while the remaining $98.54 million (25%) were imported purchases, indicating money leaking out of the region.

The supply chain analysis shows that industry sub-sectors namely, agencies, brokerages and other insurance-related activities, business schools and computer and management training, lessors of nonfinancial intangible assets (except copyrighted works)and business support services spend 100% of money within the region.

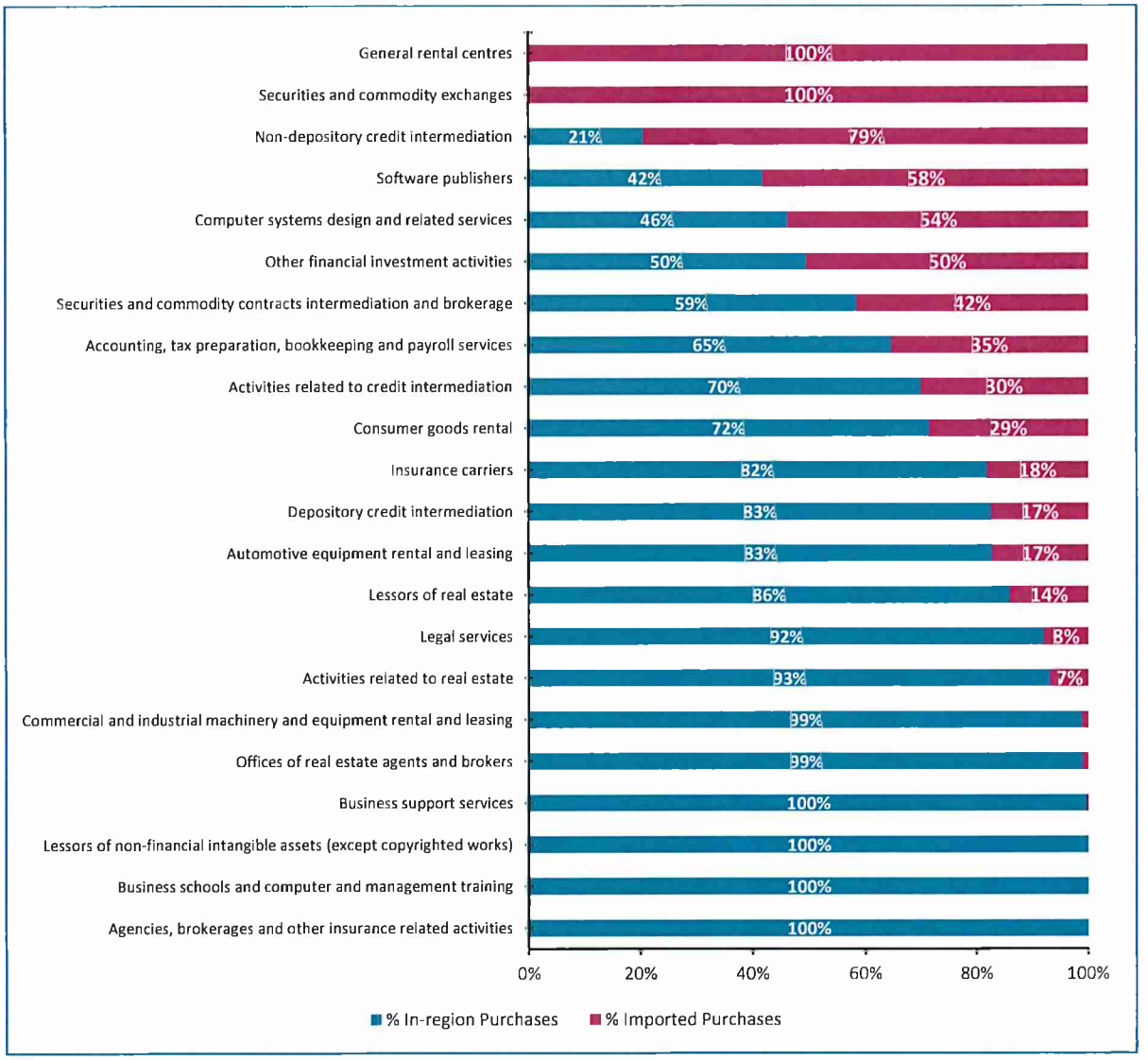
Opportunities exist for industry sub-sectors such as consumer goods rental, activities related to credit intermediation, accounting, tax preparation, bookkeeping and payroll services, securities and commodity contracts intermediation and brokerage and other financial investment activities to expand businesses in the region as in-purchase dollars account for at least 50% of total purchases.

Computer systems design and related services, software publishers, non-depository credit intermediation and securities and commodity exchanges have a higher percentage of purchases from outside the region. Computer systems design and related services and software publishers, which represent sectors with Fintech/Blockchain potential reported $35.36 million (54%) of purchases, were spent outside the region.

Data shows that 100% of the money in securities and commodity exchanges and general rental centres are spent outside the region, indicating a wide gap in the sector's supply chain. This represents $1 million in losses, specific to this sector.

[12] These include purchases made only in the FIRE sector and do not account for all industry sectors that represent the full supply chain of the FIRE sector.

Figure 12: Industry Supply Chain Analysis, 2018



Source: EMSI Analyst, 2018.

Employment Projections

In terms of employment projections, the FIRE sector in Hamilton is projected to see sustained growth of approximately 1% year over year from 2018 to 2024. The sector is projected to increase by 6% (980 jobs) from 2018 to 2024. As shown in **Error! Reference source not found.**, the Fintech/Blockchain sector is projected to show the highest increase in job numbers, followed by jobs in support industries to the FIRE sector.

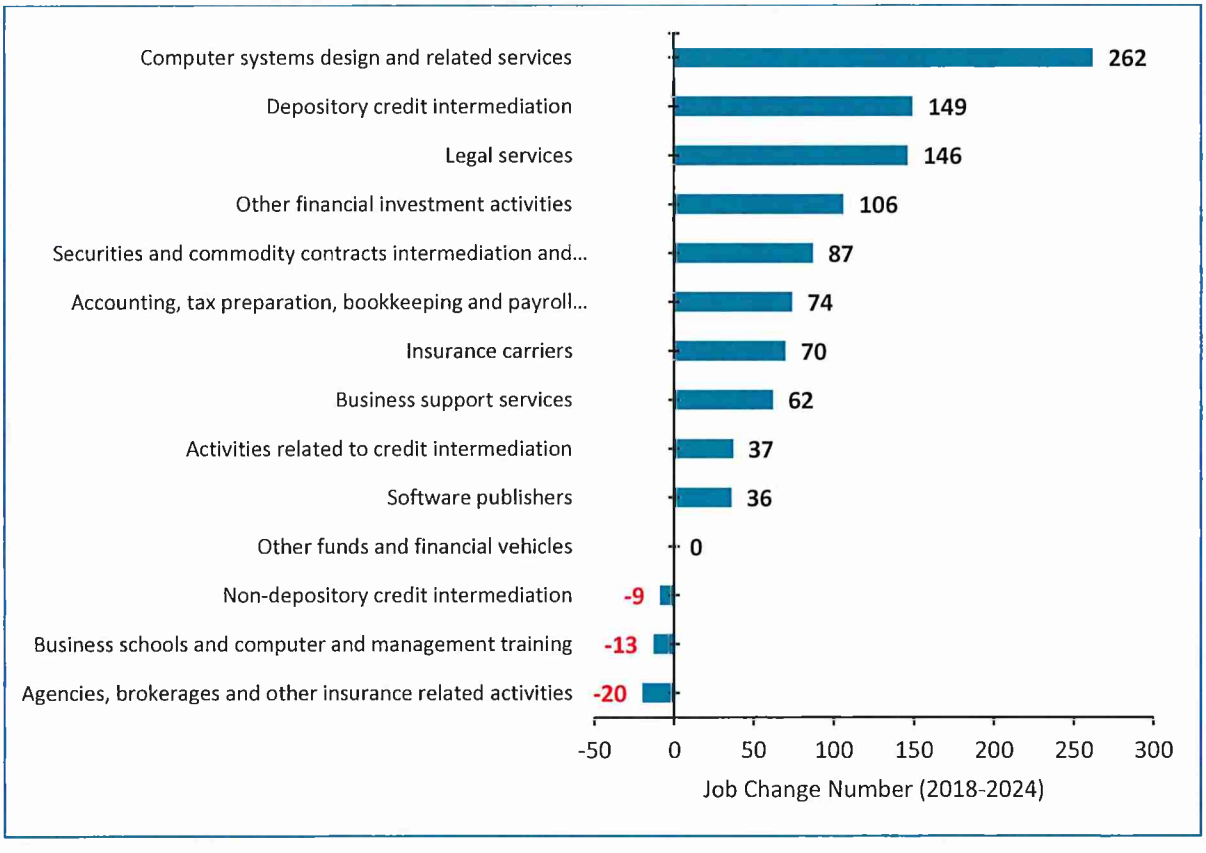
Figure 13: FIRE Sector Job Projections, Hamilton, 2018 -2024

Industry Sectors (NAICS)	Job by Year							2018-2024 Job Change	
	2018	2019	2020	2021	2022	2023	2024	Net Change	% Change
Banks	3,385	3,417	3,445	3473	3502	3,534	3,562	177	5.2%
Insurance	2,378	2,376	2,375	2,376	2,386	2,409	2,428	50	2.1%
Investment	1,799	1,849	1,889	1,923	1,949	1,973	1,992	193	10.7%
Fintech/Blockchain Potential	2,353	2,409	2,460	2512	2558	2605	2,651	298	12.7%
Support Industries to the FIRE Sector	5,981	6,039	6,089	6,133	6,173	6,213	6,250	269	4.5%
Total FIRE Sector	15,903	16,090	16,260	16,418	16,568	16,733	16,883	980	6.2%

Source: EMSI Analyst, 2018. Real estate and rental and leasing data unavailable

Error! Reference source not found. shows the industry sub-sectors that are projected to show job growth through to 2024 and those sectors that show a decline by job numbers.

Figure 14: FIRE Sub sector Job Change, Hamilton, 2018 -2024

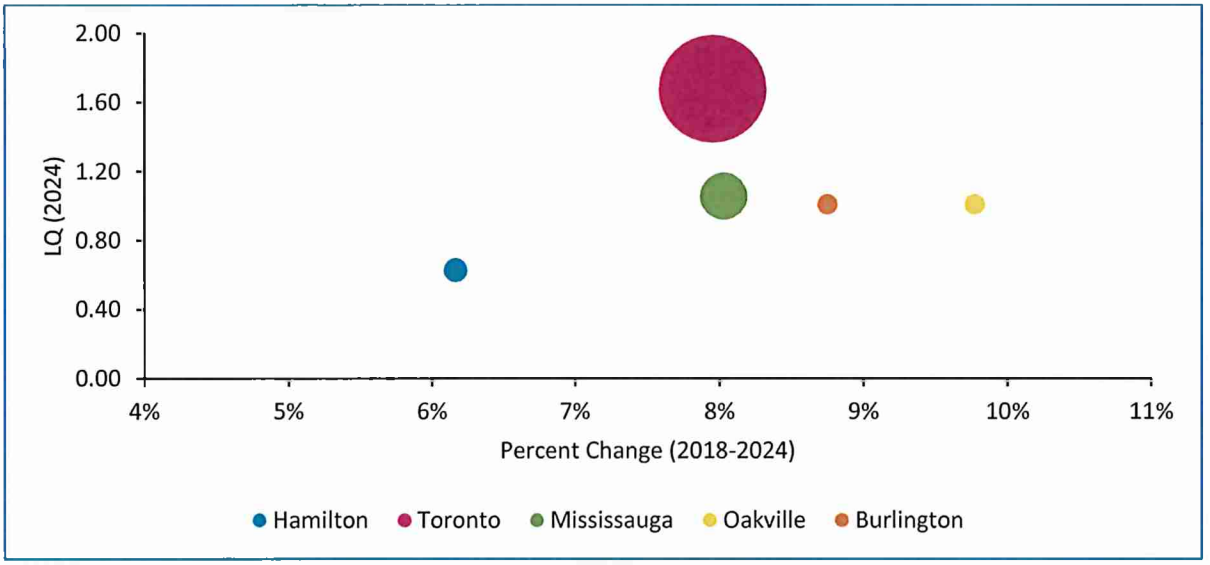


Source: EMSI Analyst, 2018. Real estate and rental and leasing data unavailable

Analysing Hamilton's FIRE sector job concentration in 2024 and projected growth to 2024 to regional comparators (**Error! Reference source not found.**), the following assumptions can be made:

- The bubble size indicates the job number in Hamilton relative to regional comparators in 2024
- Oakville leads among comparator regions in terms of FIRE sector job growth from 2018 to 2024 at 10%, followed by Burlington at 9%, Toronto and Mississauga at 8% and Hamilton at 6%
- Toronto FIRE jobs with an LQ of 1.68 in 2024 indicate an area of competitive strength. Mississauga, Burlington and Oakville show FIRE sector jobs on par with jobs in the province. Hamilton with an LQ of 0.63 indicates a low concentration of jobs in FIRE in 2024

Figure 15: Concentration and Percent Change in FIRE Sector Jobs, 2018 -2024



Source: EMSI Analyst, 2018. Real estate and rental and leasing data unavailable

Employment Income

The average wages in the FIRE sector in 2017 for Hamilton and comparator regions are shown in **Error! Reference source not found.**. Hamilton has the lowest median wages in the FIRE sector at $52,308 compared to Toronto which leads with $84,463. Hamilton's median wages in the sector is low compared to both average provincial wages at $71,606 and national median wage at $68,443.

Figure 16: Average Wages, 2017

Source: EMSI Analyst, 2018. Real estate and rental and leasing data unavailable

Staffing Patterns and Projections

Staffing patterns show the percentage of total industry jobs in a specific occupation. In 2017, the top 10 occupations in the FIRE sectors were:

- Other financial officers - 1,415
- Customer services representatives - financial institutions – 1,041
- Financial auditors and accountants - 882
- Lawyers and Quebec notaries - 844
- Insurance agents and brokers - 768
- Information systems analysts and consultants - 751
- Other customer and information services representatives - 596
- Accounting technicians and bookkeepers - 546
- Computer programmers and interactive media developers - 546
- Legal administrative assistants – 545

The staffing patterns were studied up to 2024, to identify the occupations that are projected to grow or decline. This analysis enables the identification of occupations that will be in-demand and relevant to the economic performance of the sector. Identifying these occupations will allow the community to develop initiatives and skills training to ensure the labour pool have the relevant skills.

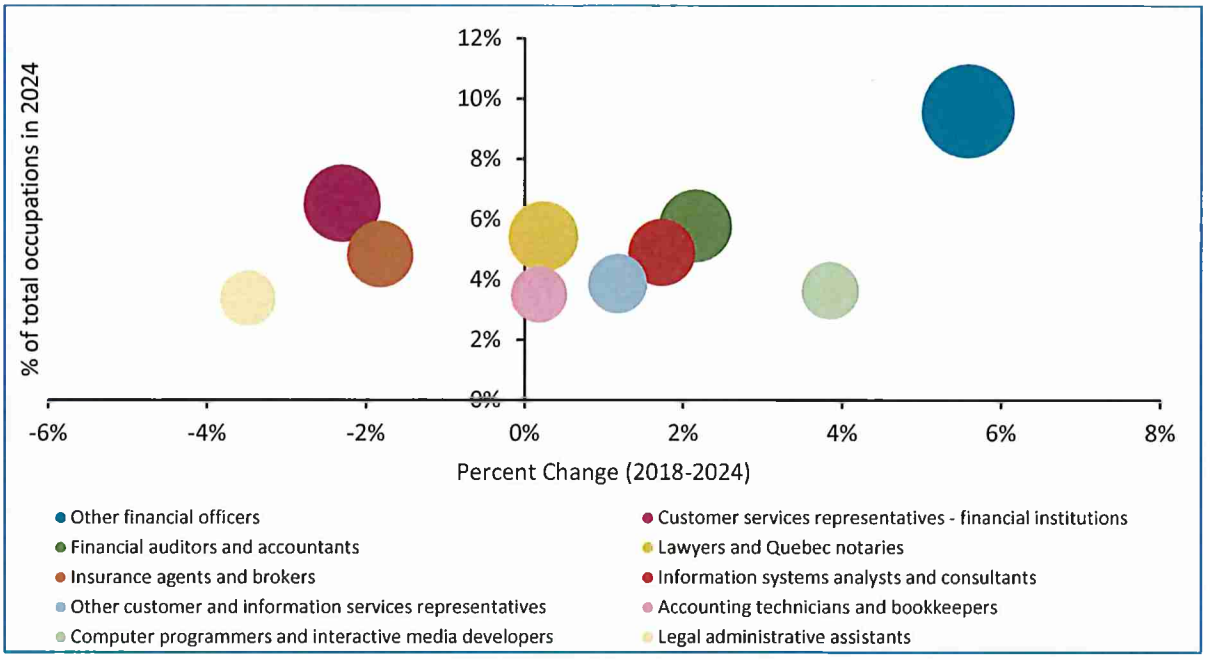
Analysing staffing pattern changes to 2024, and relative proportion of total occupations in 2024 (**Error! Reference source not found.**) shows:

- The bubble size indicates the number of occupations related to the FIRE sector industry in Hamilton in 2024
- Other financial officers will continue to be the top occupation related to the sector. This unit group includes professional occupations in finance such as financial planners, financial examiners and

inspectors, financial investigators, financial underwriters, mortgage brokers and trust officers. They are employed by banks, trust companies, investment firms and governments, or they may be self-employed.

- Computer programmers and interactive media developers, financial auditors and accountants and information systems analysts and consultants are projected to be high growth occupations.
- Legal administrative assistants, customer services representatives - financial institutions and insurance agents and brokers are projected to be decline by 2024.

Figure 17: Proportion of FIRE Related Occupations in 2024 and Projected Change, 2018 -2024



Source: EMSI Analyst, 2018. Real estate and rental and leasing data unavailable

FIRE Sector Businesses

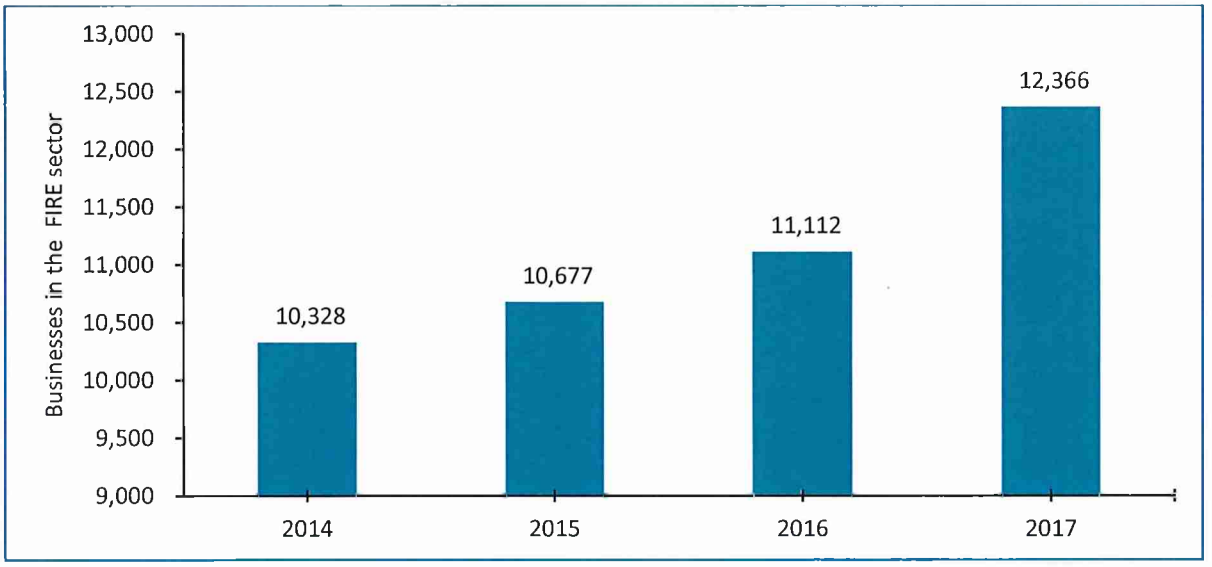
Statistics Canada's Canadian Business Counts provides a record of business establishments by industry and size, collected from the Canada Revenue Agency. The data collected includes all local businesses that meet at least one of the three criteria:

- Have an employee workforce for which they submit payroll remittances to CRA; or
- Have a minimum of $30,000 in annual sales revenue; or
- Are incorporated under a federal or provincial act and have filed a federal corporate income tax form within the past three years

The business counts data identified 42,338 business establishments in Hamilton in 2017. Of these 12,366 businesses (29%) were businesses related to the FIRE sector (**Error! Reference source not found.**). FIRE

sector businesses in Hamilton increased from 10,328 counts in 2014 to 12,366 counts in 2017.

Figure 18: Total Businesses in the FIRE Sector



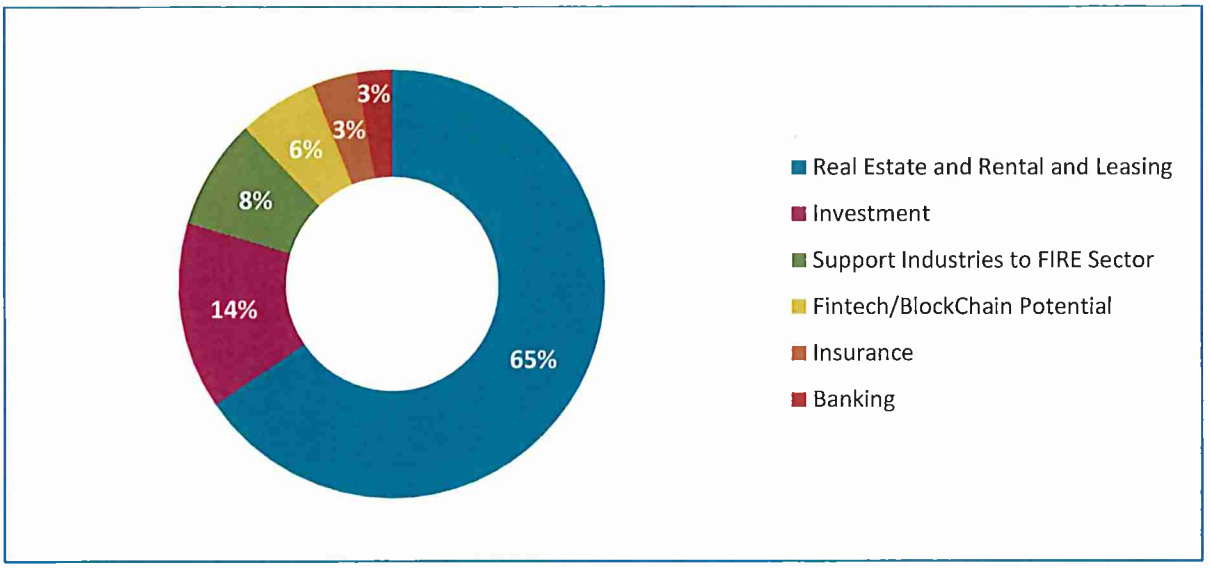
Source: Canadian Business Counts, 2014, 2015, 2016 and 2017

As shown in Figure 3, real estate and rental and leasing businesses accounted for approximately 65% of Hamilton FIRE sector businesses. Investment businesses and businesses that support the FIRE sector accounted for 14% and 8% of all FIRE sector businesses.

The majority of businesses in investment were miscellaneous intermediation establishments primarily engaged in acting as principals in the buying and selling of financial contracts, other than securities or commodity contracts, generally on a spread basis. Support businesses included offices of lawyers and accountants, bookkeeping, payroll and tax preparation services.

Approximately 6% of businesses have Fintech/Blockchain Potential and include computer systems design and related service businesses and software publishers. Insurance accounted for 3% of all FIRE businesses and is largely made up of insurance agencies and brokerages. Banks accounted for 3% of businesses in the sector. Major businesses in this sector include Mortgage and non-mortgage loan brokers and the personal and commercial banking industry.

Figure 19: Percentage of Businesses in the FIRE Sector, 2017



Source: Canadian Business Counts, 2017

Approximately 10,557 (85%) of businesses in the FIRE sector are businesses with no employees. 1,169 (9%) of businesses have from 1 to 4 employees while 264 (4%) of businesses employ 5 to 9 employees and 224 (3%) from 10 to 19 employees.

Figure 20: FIRE Business by Employee Type and Size of Establishment by Sub-sector, 2017

FIRE Sub-sector Businesses (2017)	Total	Without employees	Businesses with Employees					
			1-4	5-9	10-19	20-49	50-99	100+
Real estate and rental and leasing	8,098	7,518	380	78	83	31	7	1
Investment	1,749	1,568	132	21	7	11	6	4
Support Industries to the FIRE Sector	1,032	585	320	69	38	10	6	4
Fintech/Blockchain Potential	734	473	209	28	18	5	1	-
Insurance	425	265	77	40	17	17	5	4
Banks	328	148	51	28	61	34	3	3
Total FIRE Businesses	12,366	10,557	1,169	264	224	108	28	16

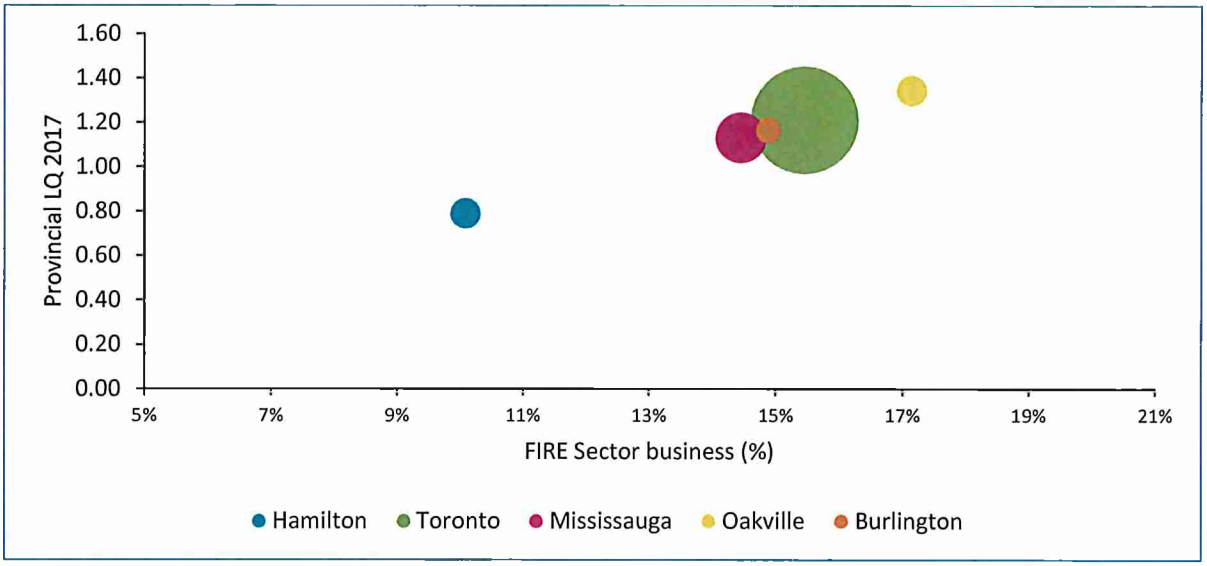
Source: Canadian Business Counts, 2017

Analysing Hamilton's FIRE sector businesses to regional comparators (**Error! Reference source not found.**) shows that:

- The bubble size indicates FIRE businesses in Hamilton relative to regional comparators
- Oakville leads among comparator regions in terms of FIRE sector businesses as a factor of total businesses at 17%, followed by Toronto and Burlington at 15% each, Mississauga at 14% and Hamilton at 10%

- Oakville FIRE businesses with an LQ of 1.34 in 2017 indicate a high concentration of businesses. Toronto also has a high concentration of FIRE sector businesses with an LQ of 1.21. Burlington and Mississauga show FIRE sector businesses on par with businesses in the province. Hamilton with an LQ of 0.79 indicates an average concentration of businesses in FIRE

Figure 21: Concentration and Percent of FIRE Sector Businesses, 2017



Source: Canadian Business Counts, 2017

Major Employers

The top employers in Hamilton by employee number related to the FIRE sector as reported in D&B Hoovers is shown below.

Figure 22: Major Employers in Hamilton FIRE Sector, 2017

Company Name	Employees	Revenue (USD)	Business Activities
Cunningham Lindsey Canada Limited	439	42M	Insurance Agencies and Brokerages
FirstOntario Credit Union Limited	400		Credit Unions
Tandia Financial Credit Union Limited	200	29M	Credit Unions
Cunningham Lindsey Canada Limited	150		Insurance Agencies and Brokerages
G-WLG LP	140		Offices of Lawyers
Gowling WLG (Canada) LLP	135		Offices of Lawyers
Teachers Credit Union Limited	100	14M	Credit Unions
SimpsonWigle Law LLP	75	6.2M	Offices of Lawyers
Ross & McBride LLP	62	5.1M	Offices of Lawyers
Crawford & Company (Canada) Inc	60		Insurance Agencies and Brokerages

Company Name	Employees	Revenue (USD)	Business Activities
Agro Zaffiro LLP	50	4.1M	Offices of Lawyers
Morris, B. Law Group	50	4.1M	Offices of Lawyers
Assante Capital Management Ltd	50		Investment Banking and Securities Dealing
Mainway Hunter Creighton Insurance Inc	50		Insurance Agencies and Brokerages
Crawford Smith & Swallow Chartered Accountants LLP	50		Offices of Lawyers

Source: D&B Hoovers, 2018

Education Profile and Talent Supply

In 2016, approximately 332,950 residents aged 15 years and over had a postsecondary certificate, diploma or degree in Hamilton. 23% (77,445 persons) of this population had degrees related to the FIRE sector.

Analysing the education profile of Hamilton's graduates, it was determined that 20% of the population with FIRE related degrees had a general Business/commerce degree. **Error! Reference source not found.** shows the other top degree programs in Hamilton. While studying this data, it should be understood that although only 2% of the population have real estate or computer programming degrees, the proportion of these is similar to provincial and national rates.

Figure 23: Percentage of Population with FIRE related degrees, 2016

Degree Program	Hamilton	% of Population with FIRE related degrees
Business/commerce, general	15,145	20%
Business administration, management and operations	10,370	13%
Accounting and related services	10,060	13%
Business operations support and assistant services	5,850	8%
Economics	4,285	6%
Marketing	3,955	5%
Legal support services	2,975	4%
Finance and financial management services	2,920	4%
Computer and information sciences and support services, general	2,880	4%
Computer science	2,855	4%
Specialized sales, merchandising and marketing operations	2,710	3%
Human resources management and services	2,395	3%

Degree Program	Hamilton	% of Population with FIRE related degrees
Law (LLB, JD, BCL)	1,960	3%
Insurance	1,725	2%
Real estate	1,310	2%
Computer programming	1,215	2%

Source: Statistics Canada, Census of Canada 2016

The program completions data provided by EMSI Analyst identified that in 2014 Hamilton accounted for 10,205 program completions (**Error! Reference source not found.**). Of these, approximately 1,818 program completions were graduates with degrees related to the FIRE sector. Similar to the data presented in **Error! Reference source not found.**, the majority of graduates in Hamilton were general business/commerce, economics and accounting and related services graduates.

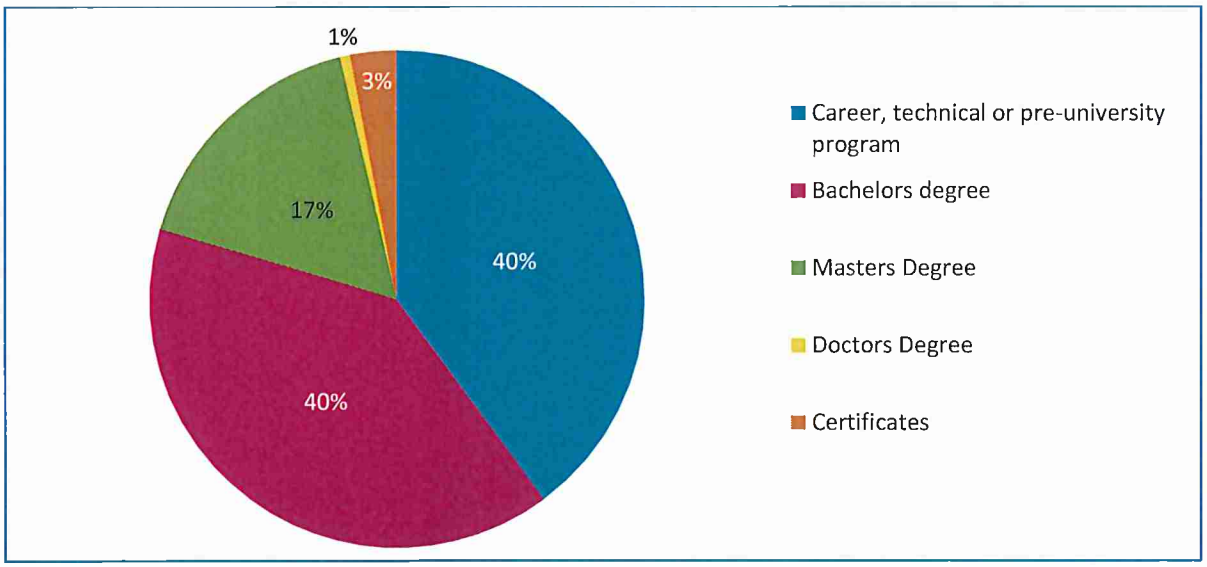
Figure 24: Program Completions in the FIRE Sector, 2009-2014

FIRE related Programs	2009 Completions	2014 Completions	% Change
Hamilton	1,377	1,818	32.1%
Province	35,109	43,824	24.8%
Nation	99,887	116,364	16.5%

Source: EMSI Analyst, 2018. Real estate and rental and leasing data unavailable

Analyzing the regional completions by the institution, it was seen that McMaster University and Mohawk College of Applied Arts and Technology offer degrees related to the FIRE sector. The majority of program completions were either a career, technical or pre-university program or a bachelor's degree.

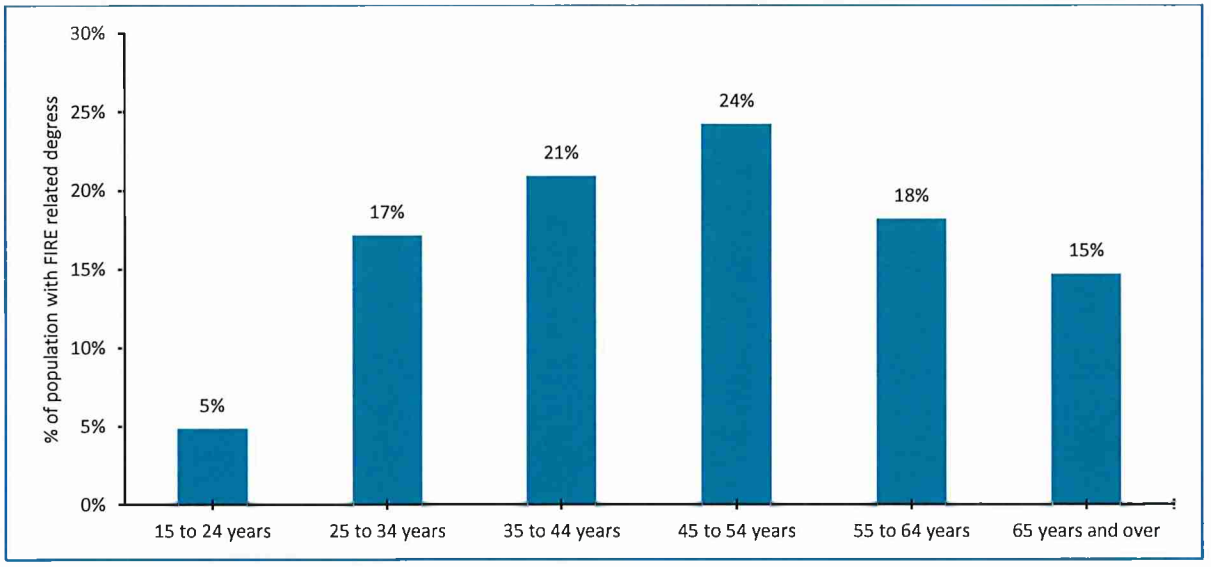
Figure 25: Program Completions by Degree Level, 2014



Source: EMSI Analyst, 2018. Real estate and rental and leasing data unavailable

Error! Reference source not found. shows the percentage of age groups with educational degrees related to the FIRE sector. It is understood that the majority of the population with FIRE sector degrees are between the ages of 45 to 54 years. Only 5% of the incoming labour force between the ages of 15 to 24 years has degrees related to the FIRE sector. The core labour force (25 to 44 years) makes up 38% of the population while the mature labour force (45 to 64 years) makes up 42% of the population.

Figure 26: Age of Population with a Postsecondary Certificate, Diploma or Degree in FIRE related studies, 2016



Source: Statistics Canada, Census of Canada 2016

The staffing projections identified that the top occupations in demand would be financial officers such as financial planners, financial examiners and inspectors, financial investigators, financial underwriters, mortgage brokers and trust officers. They are employed by banks, trust companies, investment firms and governments, or they may be self-employed. Hamilton does seem to have a good proportion of talent supply with business/commerce, economics and accounting skills. It would, however, need to foster skills training initiatives to develop computer programming, information and media development skills. In addition, analyzing the current talent available to participate in the workforce (**Error! Reference source not found.**), it is identified that Hamilton might face a skills gap in the future. The incoming labour force may not be adequate to meet the future demand and fill vacant jobs that arise as the mature labour force starts exiting the workforce.

Vicinity jobs data shows that approximately 52,202 job postings were published from Oct 2017 to Oct 2018 in Hamilton, Mississauga, Oakville, Toronto and Burlington. Of these job postings, 85% were in Toronto while only 4% were in Hamilton. The majority of job postings were related to the banking sector, specifically banking, local credit unions and deposit-accepting mortgage companies. Job postings related to the computer systems design and related services were also high, approximately 13,172 job postings were related to this industry. Hamilton accounted for 9% of these job postings compared to Toronto (79%), Mississauga (9%), Burlington (2%) and Oakville (1%).